

TM 9-1275

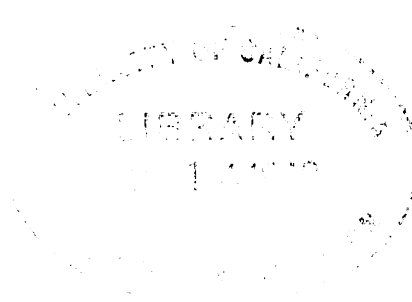
WAR DEPARTMENT

TECHNICAL MANUAL

ORDNANCE MAINTENANCE

U. S. RIFLE, CAL. .30, M1

December 15, 1941



TECHNICAL MANUAL
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CHANGES }
No. 1 }

U. S. WAR DEPARTMENT,
WASHINGTON, May 15, 1943.

TM 9-1275, November 6, 1942, is changed as follows:

2. Data. a.

* * * *

Rifling

Number of grooves----- 2 (rifles of new manufacture)
4 (rifles of old manufacture)
R. H. twist; 1 turn in----- 22.8 cal., 10 in.

* * * *

[A. G. 062.11 (4-20-43).] (C 1, May 15, 1943.)

77. Assembly of gas cylinder group (spline type).

* * * *

b. Place the gas cylinder lock over the barrel with the lug forward and screw into position. In order to bring the lock into correct alinement, proceed as follows:

(1) Screw lock down as far as possible. Do not force.

(2) Unscrew lock a fraction of a turn to the left until the screw hole in the lock lines up with the threaded hole in the gas cylinder, permitting assembly of the gas cylinder lock-screw.

(3) Turn screw in several threads with the fingers only.

(4) Push the gas cylinder lightly toward the muzzle until it rests against the lock.

c. (Superseded.) Tighten the lock screw so it cannot work loose while firing. A torque of 17 to 20 foot pounds or a pressure of approximately 50 pounds applied to each end of a combination tool will be required to tighten lock screw properly.

* * * *

[A. G. 062.11 (4-20-43).] (C 1, May 15, 1943.)

BY ORDER OF THE SECRETARY OF WAR:

G. C. MARSHALL,
Chief of Staff.

OFFICIAL:

J. A. ULIO,
Major General,
The Adjutant General.



TECHNICAL MANUAL)
No. 9-1275)

WAR DEPARTMENT,
Washington, December 15, 1941.

ORDNANCE MAINTENANCE

U.S. RIFLE, CAL.30, M1

Prepared under direction
of the
Chief of Ordnance

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TM 9:1275
1941
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SECTION I

INTRODUCTION

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1. PURPOSE. - The purpose of this manual is to furnish instructions for the inspection, maintenance and repair of the U.S. Rifle, Cal..30, M1 (fig. 1), the Bayonet, M1905, Bayonet Scabbard, M3, Bayonet Scabbard, M1910, and Gun Sling, M1907. It is intended for the use of Ordnance personnel charged with inspection, maintenance and repair of this materiel.

2. SCOPE. - This manual contains instructions for inspection, maintenance and repair supplementary to information given in the publications listed in Section VI.

3. CHARACTERISTIC DATA. - a. There are now in existence two types of gas cylinder, barrel, and front sight assemblies for the U.S. Rifle, Cal..30, M1. In the newer or spline type (fig. 12) the barrel protrudes beyond the gas cylinder, and the front sight screw enters from the rear and is sealed to prevent tampering. In the older, or screw-on type (fig. 13) the barrel does not protrude and the front sight screw enters from the side. The screw-on type of gas cylinder, front sight assembly, and barrel will be replaced by the spline type gas cylinder and front sight assembly, together with barrel, when the older type becomes unserviceable.

b. There are now in existence two types of operating rod spring, two types of compensating spring and three types of follower rod:

(1) The original combination consisted of an operating rod spring of keystone cross section wire which is of uniform outside diameter, used with follower rod and compensating spring of round or square cross section wire.

(2) A later type consists of a similar operating rod spring used with a modified follower rod without the compensating spring.

(3) A still later type consists of an operating rod spring of round cross section wire slightly tapered at the rear end to fit on follower rod, and a modified follower rod, without the

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compensating spring. The main differences in the follower rods lie in the position of the shoulder on the shank of the rod (machined portion) in the later type the fork consists of two separate pieces riveted to the shank of the rod which is rectangular in cross section.

c. The rear sight of rifles (M1) of late manufacture has a slightly modified cover. In the older type cover the stiffening ridge was a lateral step-down continuing all the way across the cover. In the later type a concave depression extends laterally across the cover between two similar concave depressions running longitudinally along each side of the cover. This later construction provides a more positive spring action.

d. Earlier type rifles have a plain butt plate mounted flat on the butt and without trap. The butt plate of later type rifles is recessed, and the butt set into the plate. The hinged trap cover of the butt plate allows access to the two wells in the butt for carrying combination tool, M3, and oiler and thong.

SECTION II

TOOLS FOR INSPECTION

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4. GENERAL TOOLS FOR INSPECTION. - General tools used in inspection are listed in SNL B-20 (special repair tools), and are carried by the small arms repair truck.

5. SPECIAL TOOLS FOR INSPECTION. - Special tools for inspection are listed in SNL B-20 and are carried by the small arms repair truck. Description in general of the use of these tools is given below. For detailed use refer to paragraph 9.

a. Bolt, field test (B46302). - The field test bolt is used in conjunction with the headspace gages listed below in determining whether the chamber, bolt, bolt lug seats in receiver, or all three are worn.

b. Gages, headspace, 1.942 in. (C7719C), 1.946 in. (C7719G), 1.950 in. (C7719M). - (1) The headspace gages are used in conjunction with the field test bolt to determine wear of parts referred to in paragraph a. above.

(2) The face of the bolt of the cal..30, M1 rifle has a small fillet at the bottom of the cartridge seat. Drawing C7719 of the headspace gages has been revised to provide a 45° bevel of the head of all gages. Only the headspace gages having beveled heads will be used in the inspection of the cal..30, M1 rifle. The 1.950 inch gage (C7719M) is provided with a clearance cut for the ejector. The clearance cut eliminates the necessity of disassembling the rifle to check the headspace. If gages having the clearance cut are not available, the rifle must be disassembled and the ejector removed before attempting to check the headspace.

c. Gage, breech bore (C64343). - The breech bore gage is used to determine wear of the bore at the origin of the rifling. It is a cylindrical gage of conventional type having 10 graduations, each of which corresponds to .001 inch of wear. The 10th graduation or point marked "reject" is equivalent to a bore diameter of .310 inch as the zero graduation is .300 inch.

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d. Gage, alinement, gas cylinder plug (G2366). - The gas cylinder plug alinement gage is used for rifles having the older screw-on type gas cylinder, to check the alinement of the gas cylinder plug with the bore of the rifle.

e. Reflector, barrel (B147329). - The barrel reflector is used for visual inspection of the bore and chamber of the barrel.

f. Weights, trigger pull, 3-1/2 pounds, 4-1/2 pounds, and 7-1/2 pounds. - The trigger pull weights are to be improvised locally. They are used in determining the force required to pull the trigger of the rifle.

NOTE: Rifle trigger pull test weight hook, and combination weights up to 6-1/2 pounds are carried in the small arms repair truck. For improvised hook and weights refer to paragraph 10.

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SECTION III

INSTRUCTIONS FOR INSPECTION

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6. GENERAL. - Inspection is for the purpose of determining the condition of the rifle and indicates whether repair or adjustments are required to insure serviceability of the materiel. The materiel should be thoroughly cleaned before inspection to remove any oil, fouling or other foreign matter which might interfere with the detection of defects or proper functioning. For instructions on cleaning the rifle refer to FM 23-5 section on "Care and Cleaning", TM 9-850 and paragraph 50 of this manual.

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7. DISASSEMBLY AND ASSEMBLY. - A thorough knowledge of the disassembling, assembling, functioning and operation is an essential for personnel charged with inspection, maintenance and repair of the rifle. For a description of disassembling, assembling, functioning and operation of U.S. Rifle, Cal..30, M1, refer to FM 23-5.

8. INSPECTION REPORT. - The procedure to be followed relating to inspection and maintenance is contained in TM 9-1100, "Ordnance Maintenance Procedure - Materiel Inspection and Repair".

9. INSPECTION OF U.S. RIFLE, CAL..30, M1. - a. The inspection of the U.S. Rifle, Cal..30, M1 consists of the inspection of the groups in paragraphs 10 to 26, inclusive, which are arranged in the order of inspection.

b. Rifle as a unit. - Inspect the rifle as a unit for general appearance and condition, smoothness of operation, function of clip latch, follower, extractor and ejector. Test with clip of dummy cartridges.

10. TRIGGER PULL. - Test trigger pull of rifle, and trigger for "creep". Trigger pull of rifles in service must be greater than 3-1/2 pounds, but should not exceed 7-1/2 pounds. Rifles cleaned and repaired in ordnance establishments should have a minimum trigger pull of not less than 4-1/2 pounds. This is to allow for wear.

a. The inspector, in testing trigger pull of rifles in the hands of troops, should have two weights, one of 3-1/2 pounds and one of 7-1/2 pounds. Each of the weights should be provided with a wire so that the pressure will be applied 1/4 inch from the lower end of the trigger and exerted parallel with the axis of the bore. The wire should be stiff enough to retain an L-hook bend, not less than 2-1/4 inches long, in the free end, and long enough to allow the weight to swing clear of the butt when testing.

b. To test the trigger pull. - Note that the safety is in the forward position and that the rifle is cocked. Have the weight resting on the floor or ground, and insert the hook of trigger weight wire through the trigger guard to bear on trigger, so that pressure will be applied 1/4 inch from the lower end of the trigger. Care should be taken during the test to see that the wire contacts the trigger only and does not rub

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against the trigger guard or stock, and that wire and axis of bore are parallel and perpendicular. Then, with the barrel of the rifle held vertically, raise the weight from the floor as gently as possible. If the 3-1/2 pound weight pulls the trigger (field test), or the 7-1/2 pound weight fails to pull the trigger, the rifle should be corrected by the inspector or forwarded to an ordnance establishment for correction.

NOTE: The only correction allowed (field repair) is the selective assembly of the hammer or trigger assembly or both.

c. For the purpose of inspection of rifles undergoing overhaul at Ordnance establishments, a 4-1/2 pound weight should be used in place of the 3-1/2 pound weight, because all rifles cleaned and overhauled by the Ordnance establishments should have a minimum trigger pull of 4-1/2 pounds.

11. REAR SIGHT. - a. Function and setting. - Try rear sight elevating and windage knobs for tension. To verify setting of rear sight, set the 100 yard elevating knob graduation opposite the index line on the receiver. With this setting it should be possible to depress the aperture from one to nine clicks. When resetting a disassembled elevating knob, of the proper setting is not known, elevate the aperture three clicks and secure the elevating knob with the 100 yard graduation opposite the index line on the receiver. Make final setting on the range if necessary. Check the aperture for looseness at various settings. Before disassembling, note setting for convenience when assembling.

b. Components. - Check rear sight base for looseness, burs, damaged threads, and bent wings. Check aperture for seating relative to binding between receiver and cover (forward end), condition of rack teeth, burs and deformation. Check cover for security, and tension relative to aperture. Check windage knob for damaged threads, worn knurling and serrations, and burs. Check elevating pinion for damaged or worn threads, damaged or worn pinion teeth, looseness or improper engagement with aperture rack teeth, and for burs. Check rear sight nut for damaged or improperly assembled nut lock, missing spring, foreign matter behind nut, and burs.

12. FRONT SIGHT. - Check front sight for looseness, bent or burred wings, loose or burred screw (old type), and missing screw seal and loose screw (new type). Check screw wrench recess (new type) for wear and burs. Check blade for "shine".

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13. GAS CYLINDER GROUP (SCREW-ON TYPE). - Check gas cylinder for looseness, dents, burs on bayonet lug, bent or burred front sight lugs and damaged threads, bent or broken stacking swivel, and loose or burred stacking swivel screw. Remove gas cylinder plug screw and plug and inspect gas cylinder plug and interior of gas cylinder for excessive accumulation of carbon. Check outside of gas cylinder, where it contacts the barrel near the port, for rust. Note bore of gas cylinder plug for bullet marks; if present, it indicates that the bore of the plug is not concentric with the bore of the barrel. This condition may be caused by dirt or carbon deposits in the bottom of the groove into which the gas cylinder plug fits. If dirt and carbon is present, clean groove, and check alinement with the gas cylinder plug alinement gage. To check this alinement proceed as follows:

a. Wipe the gas cylinder plug alinement gage clean and inspect it for smoothness and free sliding action of the sleeve. Remove any gumminess and apply a very light, uniform coat of oil on the spindle and the sleeve.

b. Clean the bore of the barrel and the bore of the gas cylinder plug. Special care should be taken to remove all carbon in the gas cylinder plug which might reduce the effective bore diameter.

c. Hold the sleeve of the gage back against the handle. Insert the body through gas cylinder plug and into the barrel as far as it will go, coming to a stop against the small tapered portion. This accurately centers the gage in the muzzle of the barrel.

d. Move the sliding sleeve into the gas cylinder plug as far as it will go without touching the bore of the plug. If alinement is satisfactory, the sleeve will slide in until the knurled head rests against the face of the gas cylinder plug without touching or binding in the bore of the plug. If the sleeve touches or binds at any point, the alinement is unsatisfactory and the gas cylinder plug should be replaced. If a selective assembly of plugs will not aline properly, misalignment in the gas cylinder is indicated and the gas cylinder should be replaced.

14. GAS CYLINDER GROUP (SPLINE TYPE). - Check gas cylinder for looseness, dents, burs on bayonet lug, bent or broken stacking swivel, and loose or burred stacking swivel screw.

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Remove gas cylinder lock screw and inspect interior of gas cylinder for excessive accumulation of carbon. Check outside of gas cylinder, where it contacts the barrel near the gas port, for rust. Check front sight dovetail for burs, and gas cylinder lock and screw for damaged threads, tool slot and burs.

15. TRIGGER HOUSING GROUP (FIGS. 9, 10 AND 11). - a. Trigger guard. - Check trigger guard for deformation, and locking lugs and hammer stop for wear and burs. Check latch for retention, wear and burs (fig. 16).

b. Clip ejector. - Test tension of clip ejector. Check positioning function of clip ejector (short upper arm) with V-lug on safety (left side).

c. Safety (fig. 16). - Test function, positioning and free action of safety. Check safety for deformation, hook for levelness of face contacting hammer lug, and retention, and for wear and burs. Check lug for wear and burs.

d. Trigger (fig. 16). - Test function and free action of trigger, with respect to hammer and sear. Check trigger lugs for levelness with each other and squareness of contact with faces of hammer hooks, and for wear and burs.

e. Sear (fig. 16). - Test function and free movement of sear. Check sear contacting surface for levelness and seating with hammer hooks. Check sear for looseness on pin and for burs, and pin for looseness, protrusion, and staking. Sear should pivot freely on pin, and rock slightly but have no side play.

f. Hammer group. - Test hammer for function and free action. Test tension of hammer spring (free length approximately 2.187 inches). Test hammer for retention with trigger lugs, sear and safety hook. Check contacting surfaces of hooks for levelness with each other and squareness of contact with trigger lugs and sear. Check safety lug for retentive contact with safety hook and for wear and burs. Check hammer for free pivoting on pin, and pin for wear and burs. Check spring housing for foreign matter, roughness on fork surfaces, looseness on trigger pin. Check spring plunger for deformation and nose for wear and burs. Check nose of hammer for wear and burs, and bolt camming surface (top) for roughness (fig. 16).

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16. STOCK GROUP. - a. Stock. - Inspect stock for dryness of wood, cracks, scratches, bruises or mutilations such as initials cut in stock, etc. Check relief cuts for signs of binding with adjacent assemblies and parts.

b. Swivels and butt plate. - Check for loose or bent sling swivels and burred or loose swivel screw (front). Check for loose or burred stock ferrule. Check seating of butt plate, and for loose or missing butt plate screw (short). Check butt plate cap for function, looseness on pin, loose pin, and wear in hinge. Check tension of plunger spring, and note whether plunger or spring is missing. Clean the plunger well of foreign matter. Check for combination tool M3, oiler and thong in butt well.

17. HAND GUARDS (FRONT AND REAR). - Inspect hand guards for cracks, scoring and burs. Check ferrule for looseness and burs. Check rear hand guard band for looseness and burs. Check lower band for looseness, burs and loose or missing pin (should be staked). Check spacer on the front hand guard for position and looseness.

18. FOLLOWER ROD, OPERATING ROD SPRING AND COMPENSATING SPRING (FIG. 16). - Test function of follower rod with follower arm for free action and for free action in the slot in the operating rod catch. Check rod for deformation, pinched or worn fork, loose rivets (new type), and for burs. Check operating rod spring and compensating spring for kinks and free length.

Operating rod spring (B147568) ---- inches --- 20.0 max.

Operating rod spring (C46019) ----- do --- 19.5 max.

Compensating spring (B146855) ----- do -- 3.850-.150

NOTE: Operating rod spring (C46019) referred to above is the old type (uniform diameter) spring. The new type spring (B147568) has a tapered rear end. Refer to paragraph 3. b. of this manual.

19. OPERATING ROD CATCH ASSEMBLY, FOLLOWER ARM AND BULLET GUIDE. - a. Operating rod catch (fig. 17). - Test operating rod catch for function and free action (should pivot freely on follower arm pin), deformation, worn or burred notch, burred, worn or "wavy" slot, and worn or burred point (rear arm) bearing on clip latch stud. A bent rear arm may affect clip latch function. Test accelerator for function, free rotation on pin, loose or bent pin, wear and burs. Do not disassemble accelerator unless necessary as pin is riveted in its seat.

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b. Follower arm (fig. 17). - Test follower arm for function with follower and for free rotation on pin. Check for deformation, wear, burs, loose pin and worn or burred T-lug. Check the top surface (camming accelerator) for burs.

NOTE: A bend in vertical plane of follower arm will affect the timing of the mechanism. If rear end of arm is bent up, the operating rod catch will release early and bolt snap forward as clip is inserted, or bolt may close on an empty chamber. If bent down, the catch will engage too early and clip be ejected containing the eighth, or seventh and eighth rounds. Loading may also be affected, as the catch will not release properly.

c. Bullet guide (fig. 17). - Check bullet guide for deformation, looseness on follower arm pin, wear and burs. Check lug, contacting accelerator, for burs.

20. FOLLOWER AND SLIDE (FIG. 18). - Check follower for function, wear in follower arm T-lug ways, free action, burs on side rails and worn bearing points, and for burs. Check follower slide for free action with follower and for burs. Slide and follower should not be disassembled unless necessary.

a. To disassemble slide from follower. - Stand follower on front (large) end, and tilt to a 45° angle towards slide. On under side of follower, in center of opening for follower arm, is small opening leading to slide. Insert nose of a dummy cartridge in this opening, holding cartridge vertical. Press down on cartridge and carry its top away from follower until slide snaps out of place.

b. To assemble. - Hook the slide in place in small end of follower. Stand group on end, as in disassembly but tilted to a 45° angle away from the slide. Deliver a sharp blow on rear end of slide. The slide will then snap back into place.

21. OPERATING ROD. - Test operating rod for free movement by assembling without bolt or spring. Check tube for dents and handle for deformation (causing binding of under side of lug on cut in receiver). Check handle (fig. 17) for wear and foreign matter in aperture, and wear and burs on bolt oscillating cam. Check (catch) notch for angle of contact with catch (hook) and for wear and burs. Check rod for binding with under side of barrel at the chamber, and at stock ferrule. Check rod for burs and handle lug (inner side) for wear. Check piston for scoring and excessive carbon, and rod back of piston for rust. Rod should move freely, when not assembled to bolt or follower,

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when rifle is tilted. New guns may work stiffly until broken in due to "parkerizing".

NOTE: The operating rod tube is slightly bent to provide clearance at the enlarged portion of the barrel. This bend should not be removed.

22. BOLT GROUP (FIG. 18). - a. Bolt. - Test bolt (free) for freedom and smoothness of movement, and for locking. Check for recessive wear on face, worn or burred locking lugs and cam surfaces, and burred nose at top. Inspect firing pin well, extractor plunger spring well and ejector well, for foreign matter. Check the clearance cut on the right side and the cartridge clip channels for burs.

b. Firing pin. - Test firing pin for freedom of movement in well, deformation, wear on front and rear bearing surfaces and burs on nose and heel. In retracted position, protrusion of nose can be .004 inch maximum, and recession .022 inch maximum; in fired position, protrusion should be .030 to .065 inch.

c. Extractor. - Test extractor for grip on shell base, and extractor spring for tension (free length .485-.010 inch). Check spring for kinks and level seat. Check extractor for burs and worn face, and plunger for deformation and burs. Hold the thumb over ejector when removing extractor on account of tension of ejector spring. Check free movement in bolt. For assembling refer to paragraph 32. a. (2)(d), and b. of this manual.

d. Ejector. - Test tension of ejector spring. (Free length approximately 1.156 inches). Check ejector for worn face, worn extractor retention groove, and burs. Check spring for kinks and level seat. Check free movement in bolt, and for binding with extractor spindle.

23. CLIP LATCH (FIG. 16). - Check clip latch for freedom of movement (without spring). Check for wear and burs on retention hook and lug face. Test spring for tension (free length approximately .453 inch), and check for kinks and level seating. Large end of spring should be seated in clip latch and small end in seating recess in receiver. Pin must not protrude when assembled as it will cause damage to stock. Check pin for looseness and burs.

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24. RECEIVER. - Inspect receiver for wear in ways, contacting surfaces, and for burs. Check pin holes and lug recesses for wear. Check rear sight mounting wings for deformation, burs, and worn serrations. Check barrel threads for looseness (with barrel). Check firing pin camming surface in top of bridge, and firing pin recess, for burs.

25. BARREL. - Check barrel threads for looseness with respect to receiver and gas cylinder lock threads. Inspect gas port in barrel for rust and foreign matter, and outside of barrel, where it contacts gas cylinder, for rust (due to gas action). Inspect barrel for serviceability. Inspection of rifle barrels for serviceability is based principally upon accuracy and inspectors will be guided by this requirement. Accuracy is reduced in varying degrees by the following defects: bulges, erosion and pits. The extent to which these defects reduce accuracy is determined by two methods: visual inspection, and bore gaging. Before any attempt is made to inspect a barrel for serviceability, fouling and oil should be removed and the bore wiped dry.

a. Visual inspection. - (1) Place the barrel reflector in the chamber and examine the bore from the muzzle and breech.

(2) If the barrel is not bent or otherwise deformed, and the bore appears free from bulges and pits, and the lands are sharp and uniformly distinct, it is serviceable.

(3) If the bore contains small pits but has sharp and uniformly distinct lands and is free from bulges and not otherwise deformed, it is serviceable.

(4) If the barrel contains a bulge, it is unserviceable and should be scrapped. This condition is indicated by a shadowy depression or dark ring in the bore and may often be noticed through a bulge or raised ring on the barrel surface.

(5) If the barrel is pitted to the extent that the sharpness of the lands is affected, or if it has a pit or pits in the lands or grooves large enough to permit the passage of gas past the bullet, that is, a pit the width of a land or groove and $\frac{3}{8}$ to $\frac{1}{2}$ inch long or longer, it is or soon will be too inaccurate for serviceability and should be scrapped. This condition indicates that proper care of the barrel has not been taken.

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(6) During the inspection of the bore from the breech, special attention should be given to the chamber. Pits will cause hard extraction and may cause the cartridge case to stick in the chamber sufficiently to cause failure to extract. Barrels that have pits large enough to cause cartridges to stick in the chamber should be considered unserviceable and should be scrapped.

(7) If the bore at the muzzle appears to be enlarged, and the barrel bore gages within the prescribed limit for serviceability, as given in paragraph b. below, improper cleaning is indicated.

b. Bore gaging. - Barrels considered unserviceable by visual inspection due to wear at the origin of the rifling, and barrels found serviceable by visual inspection will be bore gaged, using the breech bore gage shown on drawing C64343. With the bolt retracted, insert the gage into the chamber, without undue force, and note the graduation that is parallel with the rear face of the barrel (rear edge of the threaded end of receiver). If the gage reads 0.310 inch or more the barrel is unserviceable. Pits in a barrel classed as unserviceable under this condition should be disregarded.

26. HEADSPACE. - In conducting field inspection of the U.S. Rifle, Cal..30, M1, headspace will be tested with the 1.950 inch headspace gage which is provided with a clearance cut for the ejector.

a. Place the 1.950 inch headspace gage on the face of the bolt and under the extractor in position to permit the ejector to enter the clearance cut in the head of the gage. If the bolt will not close on the gage, the headspace is satisfactory. However if the bolt closes or nearly closes on the gage, proceed as follows:

(1) Remove the operating rod and related parts, disassemble the bolt and replace it in its ways in the receiver.

NOTE: The true headspace can be ascertained only when closing the bolt on a headspace gage by rotation of the right hand bolt lug with the finger.

(2) Try to close the bolt pertaining to the rifle on the 1.950 inch headspace gage. If the bolt pertaining to the rifle closes freely on the headspace gage, try the field test bolt. If the bolt pertaining to the rifle closes freely on the head-

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space gage and the field test bolt does not, excessive headspace due to worn bolt is indicated. In this case the worn bolt will be replaced by a serviceable bolt which should be tested using both the 1.942 inch gage and the 1.950 inch gage. This bolt should close on the 1.942 inch gage and should not close on the 1.950 inch gage. The worn bolt will be immediately mutilated in such a manner as to preclude its use as a component part of the rifle.

(3) If the field test bolt closed freely on the 1.950 inch headspace gage, excessive headspace due to worn locking lugs on the receiver is indicated. In this case the rifle will be withdrawn from service for overhaul. Rifles having the old type gas cylinder will be sent to Springfield Armory. Rifles having the spline type gas cylinder will be sent to Springfield Armory or to an arsenal performing overhaul work on the M1 rifle.

b. When the rifles are being cleaned and repaired at the arsenal or depot the 1.946 inch and 1.942 inch gages will be used. The bolt should not close on the 1.946 inch gage and should close freely on the 1.942 inch gage.

27. INSPECTION OF BAYONET, M1905 (FIG. 19). - a. Bayonet as a unit. - Inspect bayonet as a unit for appearance and general condition, fit and retention on rifle and looseness of components.

b. Blade. - Inspect blade for deformation, broken or nicked point, nicked or burred blade edge, unserviceable dullness and burs. Check lug ways in handle for wear, dents, burs, and foreign matter. Check scabbard catch well for foreign matter.

c. Guard. - Check guard for deformation, deformed or dented barrel band, loose fit on barrel, looseness on blade, loose rivets and burs. Check bayonet scabbard catch slot for deformation and burs.

d. Bayonet catch. - Check catch for function, wear of hook, free action in slot, deformation, looseness on grip screw, wear in screw hole and for burs.

e. Scabbard catch. - Check scabbard catch for function, free action in well, worn or burred hook, worn checkering, looseness in bayonet catch slot, and for burs. Test spring tension. (Free length catch spring .475-.030).

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f. Grips. - Check grips for cracks, dents, scoring and protrusion over blade handle. Check grip screw and escutcheons for looseness, wear, projection above grips, and for burs.

28. INSPECTION OF BAYONET SCABBARD, M3 (FIG. 19). -

a. The scabbard as a unit. - Inspect scabbard as a unit for appearance, general condition, fit and retention of bayonet, ease of bayonet withdrawal and looseness of components.

b. Body. - Check body for cuts, deep abrasions or splitting.

c. Mouthpiece. - Check mouthpiece top for looseness in the body and for wear or burs.

d. Hook. - Check hook for deformation, wear and burs.

29. INSPECTION OF BAYONET SCABBARD, M1910 (FIG. 20). -

a. Scabbard as a unit. - Inspect scabbard as a unit for appearance, general condition, fit and retention on bayonet, ease of bayonet withdrawal, and looseness of components.

b. Body. - Check body cover for condition, cuts or deep abrasions. Check reinforce leather tip for looseness (ripped stitches) on body cover, cuts or abrasions, and for condition of leather. Check drain eyelet for security in body and for stoppage and burred flange.

c. Mouthpiece. - Check mouthpiece top for looseness in body, catch lugs for deformation and retention with scabbard catch on bayonet, wear and burs. Check bushing for looseness in top, deformation, wear and burs.

d. Hanger. - Check hanger for security, loose rivet and wear or cracking in loop. Check hook for deformation, wear and burs.

30. INSPECTION OF GUN SLING, M1907. - a. Sling as a unit. Inspect sling as a unit for appearance, general condition, flexibility, and function of hooks and sliding loops.

b. Straps (long and short). - Check straps for condition of leather, weakness, ripped stitches, cuts and abrasions. Check hook holes for wear and breaks between holes. Check for tears at rivets, and wear and cracking at loops. Leather straps should not crack when bent at a sharp angle.

c. Hooks and loops. - Check hooks for deformation, pinching and burs. Check rivets for looseness. Check loops for deformation and burs. Check sliding loops for looseness on straps, pinching and burs.

SECTION IV

TOOLS FOR MAINTENANCE AND REPAIR

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31. GENERAL TOOLS FOR MAINTENANCE AND REPAIR. - General tools for maintenance and repair are listed in SNL G-72. They are carried by the small arms repair truck in addition to the special tools referred to in paragraph 32 and are available to Ordnance Maintenance Companies.

32. SPECIAL TOOLS FOR MAINTENANCE AND REPAIR. - Special tools for maintenance and repair are listed in SNL B-20, and are furnished only to Ordnance Maintenance Companies and to Ordnance establishments engaged in the manufacture or repair of these rifles. The combination tool, M3 (fig. 22) in the above list is an accessory of the rifle. The extractor removing tool (B110581, fig. 23) has recently become available to Ordnance Maintenance Companies. Description and uses of these tools are given in following paragraphs.

a. Combination tool, M3. - (1) Description. - The combination tool, M3 (C64167, fig. 22) consists of three (3) parts: the chamber-cleaning tool, the handle, and the screwdriver blade.

(2) Uses. - (a) The slot in the chamber-cleaning tool is for attachment of a cleaning patch, refer to paragraph 52 of this manual.

(b) The movable screwdriver blade is used for the gas cylinder lock screw (gas cylinder plug screw) and various other screws.

(c) The notched blade in the handle is used on the rear sight nut.

(d) The small cylindrical projection is used to drift out pins. It is also used in conjunction with the V-shaped groove cut into the face of the handle to assemble the extractor and ejector, refer to FM 23-5, paragraph 9. a. (5).

(e) The curved under cut hook, commonly called the hand extractor, is used to extract a cartridge case after firing if the extractor should fail to extract the case.

TOOLS FOR MAINTENANCE AND REPAIR

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b. Extractor removing tool (B110581). - The extractor removing tool (fig. 23) is used to remove and replace the firing pin without the necessity of disassembling the rifle.

(1) Description. - The tool is composed of two parts: a cylindrical spindle, and a ring with a pin lug and handle attached.

(2) Use. - (a) Retract bolt and insert spindle of tool into chamber of barrel until shoulder of tool has bearing.

(b) Allow bolt to close slowly, turning ring with the handle until lug of ring is under the extractor.

(c) Hold bolt closed against ring of tool, and turn ring counterclockwise so that lug (on ring) cams extractor out of its seat and engagement with ejector.

(d) Retract bolt slowly, thus allowing ejector and extractor plunger springs to release. The firingpin can then be withdrawn from its well, and new firing pin assembled, from the rear of the receiver.

(e) In replacing firing pin care must be observed to position the pin and ejector so that the extractor spindle will engage their notches properly before being pushed home. At no time in the above procedure should undue force be used. When extractor is properly seated (flush) in its notch in bolt, retract bolt and withdraw tool from chamber.

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SECTION V

INSTRUCTIONS FOR MAINTENANCE AND REPAIR

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33. GENERAL. - a. The maintenance and repair of the U.S. Rifle, Cal..30, M1, its appendages and accessories listed in this manual is primarily a replacement of worn or broken parts. The disassembly and assembly of the rifle is described in FM 23-5. Further disassembly and assembly instructions are given in this manual where necessary for the purpose of repair.

b. Where parts or assemblies, or parts of assemblies are broken or so worn as to render them unserviceable, they must be replaced from stock. Often, only parts of assemblies will be worn or broken; where it takes more time to remove the serviceable parts from the assembly than the parts are worth, the assembly should be replaced.

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34. MAINTENANCE AND REPAIR OF U.S. RIFLE, CAL..30, ML. - In general, maintenance operations are performed by qualified Ordnance personnel with only the limited tool facilities afforded by repair trucks, or by semi-permanent shops at posts or camps, or by an inspector while making a regular inspection. Typical operations in the maintenance of the rifle, appendages and accessories listed in this manual are described in the following paragraphs.

35. BURS ON SCREW HEADS, CAMS AND CONTACTING SURFACES. - Remove burs on screw heads with a fine file. Remove burs from cams and smooth contacting metal surfaces with a fine grained sharpening stone. Polish rounded surfaces with crocus cloth if necessary. Care should be observed to stone and file evenly and lightly, removing only as small an amount of metal as necessary. On critical surfaces stone to polish only. Press on file or stone on forward stroke only.

36. BURRED, SCORED, AND PROTRUDING WOOD SURFACES. - Remove burs, rough protrusions of scorings, and protruding wood surfaces with a fine, flat file or fine abrasive. Always file towards an edge so as not to pick up splinters or chips. Press on file on forward stroke only. Smooth off with fine abrasive where necessary, and oil (raw linseed).

37. HAND GUARDS. - a. Split or loose front hand guard. - Not necessary to replace if serviceable and holds firmly in position. When replacing, shave to a tight fit under bands.

b. Split or loose rear hand guard. - Not necessary to replace if serviceable. If loose, remove and spring band together slightly, and refit hand guard.

c. Lower band pin loose or missing. - Loose or missing lower band pin may allow the band to rotate slightly on barrel and rub or bind the operating rod. Restake loose pin, or replace and stake.

38. STOCK LOOSE ON RECEIVER, AND DRY WOOD. - a. Loose stock may be caused by wear of locking lugs on trigger guard because they are of softer metal than mating surfaces in receiver. Trouble may be remedied by replacing trigger guard or lightly peening the lugs. If this does not remedy trouble, replace stock with new assembly, refer to paragraph 44. c.

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b. When fitting a new stock, check all clearance cuts (figs. 14 and 15) to see that there is no binding or interference with the parts concerned. Stocks although made of walnut and treated with linseed oil sometimes swell, due to moisture, thus causing binding of parts in cuts, or protrusion of wood beyond metal surfaces, such as butt plate, ferrule, bands, etc. In such cases relieve binding, and bevel protrusions with fine, flat file with safe edge to prevent splintering or chipping. Always file towards sharp edges. Care should be used to remove only a little wood at a time, as it cannot be replaced.

c. In dry climates wood parts of the rifle are apt to dry out and shrink. Occasional applications of raw linseed oil will help keep wood in condition. Apply oil to wood only, allow to remain a few hours to soak in. Then wipe off and polish wood with clean, dry rag. Care must be exercised not to allow linseed oil to get into crevices or mechanisms as it will "gum up" when dry.

d. Binding and malfunctions of operating parts due to insufficient clearance. - Swelling in, or ill-fitting of, the stock may cause binding at certain points which will seriously interfere with the proper functioning of the adjacent parts and mechanisms. Some of such points are:

(1) Clip latch cut. - Insufficient clearance may bind clip latch and cause operating rod catch to release rod before clip is seated and latched, or clip to be ejected prematurely. Remove obstructing wood as explained in paragraph 36 above.

(2) Trigger housing group cut. - Insufficient clearance may cause housing to be crowded in closing. Remove enough wood (a little at a time and evenly from both sides) to insure proper closing. If wood is removed from the under faces of cut, where bottom plate rests on stock, the 10° angle must be maintained, or else the edges of plate will wear a depression in the wood and make locking of trigger guard difficult.

(3) Rear end of trigger group notch. - Insufficient clearance at this point may interfere with free trigger action. Remove wood gradually until trigger action is free.

(4) Operating rod cut. - Binding at this point may seriously interfere with function of operating rod. Relieve where necessary.

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e. Butt plate recessing. - If the new type butt plate is not let into stock properly or if the wood of butt overhangs old style plate due to ill fitting or swelling of wood, there is danger of splintering and chipping at points where wood fails to meet plate.

(1) Remove plate by tapping lightly to loosen, using care not to damage butt when prying. File butt enough to seat plate with close fit all around. Frequent fitting should be done while filing to prevent the removal of too much wood, or uneven bearing. Use medium fine flat file (never coarse) and file evenly and smoothly with level bearing of file while stroking. Always file butt from heel to toe and stroke forward only. It is advisable to put very slight chamfer on sharp edges to prevent picking up splinters while filing.

(2) Where wood protrudes beyond metal of butt plate, remove wood until flush with plate. Use a fine flat file. If necessary to remove wood on step of new style butt, use file with a safe edge.

(3) If the short screw threaded in the wood binds too much when screwing home, withdraw it. Soap the threads and try again. Never use undue force on this screw or the threads in wood of stock may be stripped. If this occurs or if screw is too loose in its threaded hole, bore hole out with a drill to about twice the major (outside) diameter of the screw. Fashion, from wood, a cylindrical plug to an easy drive fit and coat with glue. Clean out hole thoroughly and drive plug to bottom. Be sure the plug is not too tight as it will split the stock. When glue is dry, cut plug off and file flush with face of butt. Then drill hole in plug with a diameter corresponding to minor (bottom of thread) diameter of screw, centering with prick punch, using butt plate as template. Rout out threads in plug if thread router is available. Soap screw and screw it in hole, backing screw off now and then to prevent thread crowding. If screw crowds hole too much, remove screw and ream out hole slightly. Do not use undue force.

39. FOREIGN MATTER IN RIFLE MECHANISMS. - Foreign matter in mechanisms may prevent proper functioning of the rifle and should be removed. Important points to check are as follows: cam recess in operating rod handle; bolt ways and lug recesses in firing pin well; extractor plunger spring, and ejector

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wells; hammer spring housing; operating rod tube; rear sight base and aperture, and behind elevating knob screw; fillet in bottom of trigger housing; trigger mechanism especially under heel of sear, and trigger lug. If heel of sear binds on trigger step, stone lightly until it has a slight rock on pin.

40. OPERATING ROD BINDING ON STOCK FERRULE. - When binding of operating rod occurs at stock ferrule, it may be remedied by removal of a small amount of metal from the ferrule, or by spreading the ferrule sufficiently for rod to clear properly. Before correcting, check alinement of stock ferrule and check ferrule pin for looseness.

41. REAR SIGHT. - a. Rear sight aperture rack binding with cover. - When front end of aperture rack binds between sight cover and receiver groove, remove small amount of metal from under side of front end of rack and round off sharp corners, with sharpening stone.

b. Rear sight loose. - Looseness in rear sight is usually due to improper spring tension. Tension in both elevating knob and windage knob is adjustable by means of rear sight nut located in windage knob. Normal setting is to tighten until solid, then back off nut 3 or 4 clicks. If too tight or too loose, change a click at a time. Slight outward pull will relieve strain of turning knobs.

c. Rear sight aperture loose. - (1) Looseness in rear sight aperture is usually due to insufficient spring pressure of cover. Pressure can be increased by a slight bend down (of cover) at the "ridge". Pressure relieved by reverse action. Be sure rear end of cover seats properly in its recess in receiver after bending.

(2) The new type cover has a cross indentation, which bears on the aperture rack, and longitudinal indentations on the sides for stiffening.

d. Rear sight nut threads burred. - Where threads are damaged in rear sight nut they can be chased out with a No. 6-40NF-3 tap.

e. Rear sight nut lock damaged or jammed. - Nut lock may become damaged or burred, or jammed through improper assembly. Flat on lock must match flat on tip of elevating pinion shank. Remove burs and check freedom of spring action before assembling. With spring compressed to .160 inch, load should not be less than 6 pounds, nor more than 8 pounds.

INSTRUCTIONS FOR MAINTENANCE AND REPAIR

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f. Windage knob threads damaged. - Where threads are damaged on windage knob they can be chased out with a 5/16 inch 32NS die. Care should be taken to set die to original diameter of thread in question, so as not to reduce diameter of thread. Parts with badly damaged threads should be replaced except in emergency.

g. Rear sight base threads for windage knob damaged. - Where threads for windage knob in rear sight base are damaged, they can be chased out with a 5/16 inch 32NS bottoming tap.

h. Elevating pinion threads damaged. - Where elevating pinion threads are damaged they can be chased out as follows:

(1) For threads of spindle engaging rear sight nut, use No. 6-40NF-3 die.

(2) For threads for elevating knob screw use No. 10-32NF-3 bottoming tap.

i. Jumping rear sight. - When rear sight jumps, the cause may be due to improper adjustment of rear sight nut, or elevating knob. Knob may be extending far enough over the pinion head to rub against side of receiver, and thus hold serrations on pinion head out of engagement with mating serrations on receiver. Inner surface of elevating knob rim can be dressed off sufficiently (with sharpening stone) to allow the serrations to mate.

42. FRONT SIGHT. - Loose front sight can be tightened by removing front sight screw seal and tightening screw, after adjusting sight, on the range, to zero windage for the rifle. To remove seal, file off exposed surface of seal and, using a socket head set screw wrench, BCTXIL, 3/16 inch hex., back screw out with remainder of seal. Replace screw and tighten as above: then place new seal over screw head and seat firmly with a hammer.

43. GAS CYLINDER. - a. Gas cylinder and bayonet lug damaged. - If the gas cylinder becomes dented to the extent that there is binding, it should be replaced. It is impracticable to straighten the gas cylinder.

b. If bayonet lug is worn to loose fit with bayonet lug ways, and looseness cannot be corrected in bayonet ways as explained in paragraph 46 c. of this manual, lug may be peened lightly to better fit with ways in bayonet. Rest lug only on a solid surface when peening. This practice is not recommended however except in emergency, due to fact that lug is a part of

gas cylinder. Remove burs with fine file or hammer down lightly and then file.

c. Carbon in gas cylinder group and on piston. - Carbon will accumulate due to firing. The frequency of carbon removal is a factor peculiar to individual rifles. Excess deposits of carbon in the gas cylinder group manifest themselves by sluggishness in action and failure to feed. Remove carbon as follows:

(1) Spline type. - To remove accumulated deposits of carbon from gas cylinder, remove the lock screw and remove carbon, using the screw driver blade of the combination tool or similar instrument. The gas cylinder lock may be removed and the screw reinserted in the gas cylinder and threaded in enough to break loose the carbon. Care should be taken not to cross threads. The gas cylinder port can be cleaned with a straight punch or drift on combination tool, M3. The inside of the gas cylinder should be thoroughly wiped clean and oiled at the conclusion of firing. A few drops of oil placed between the rear gas cylinder lug and the operating rod, with the muzzle tipped down, will be sufficient if firing is contemplated the next day. Hand operate the rod through a few cycles to distribute the oil properly. Remove any rust on outside of cylinder, where it contacts barrel, using CLEANER, rifle bore, or fine abrasive. Rust on barrel at this point should be removed in a similar manner.

(2) Screw-on type. - Remove gas cylinder plug screw and plug. Scrape the carbon from the exposed surface of the front of gas cylinder and gas cylinder plug, and the grooves in the gas cylinder to insure correct seating of the plug. The frequency of cleaning depends upon the amount of firing. A sharp blade instrument, such as a mess kit knife, should be used to remove the carbon from the gas cylinder plug and piston head. If a fine abrasive cloth is used, care should be taken that the edges of the plug do not become rounded. Do not remove the gas cylinder for cleaning. The gas cylinder is cleaned by using the cleaning rod and a patch in the same manner that the bore is cleaned. Remove any rust on outside of cylinder, where it contacts barrel, with rifle bore cleaner or fine abrasive. Rust on barrel at this point should be removed in similar manner.

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(3) Piston. - Carbon on head of piston can be removed in similar manner, as explained in paragraph (2) above. Take care not to round the edges of the piston. Rust on rod or tube in rear of head can be removed with rifle bore cleaner or fine abrasive.

44. TRIGGER MECHANISM. - a. Creep in trigger. - "Parkerizing" may leave contacting surfaces of trigger lug slightly rough thus causing "creep" in trigger. Remove roughness with fine sharpening stone. Stone to a polish only, with care to levelness and maintenance of angle.

b. Bent safety. - When safety is bent, so that it binds in trigger guard cut, it should be replaced and not straightened as it is hardened steel.

c. Bent trigger guard bow and damaged locking lugs and fork. - (1) When bow in trigger guard is bent up so as to interfere with tip of trigger it can be straightened or tip of trigger ground off. Check the locking action.

(2) When trigger guard locking lugs become worn they can be peened lightly to resize and then dressed to shape with a fine file.

(3) Trigger guard fork may become sprung in, thus causing binding, or sprung out, thus preventing hammer pin from extending far enough through for proper bearing. These faults can be corrected by springing fork back into correct position.

45. NEW BOLT HARD TO CLOSE. - After a new bolt has been assembled, it should close freely on the 1.942 inch headspace gage. If the bolt does not close on this gage, selective assembly of other new bolts with the barrel should be made. After selective assembly, the bolt should close freely on the 1.942 inch headspace gage, but should not close on the 1.946 inch headspace gage.

46. MAINTENANCE AND REPAIR OF BAYONET, M1905. - a. Nicks and burs. - Nicks and burs on metal parts should be smoothed with a fine grained sharpening stone. Burs and scratches on wood grips should be smoothed with a fine flat file. Point of blade should be kept serviceably sharp. Dents in edges of blade can often be peened out before smoothing.

b. Loose rivet in guard. - Peen, or punch out rivets, replace, and rivet; file heads flush with fine flat file and polish with crocus cloth if necessary.

c. Worn lug ways. - When lug ways are worn sufficiently to make loose fit of bayonet on rifle, the ways may be lightly peened sufficiently to make fit secure. Peening should be done lightly and bayonet fitted to lug frequently during process.

d. Dry grips. - When wood of grips shows signs of dryness, raw linseed oil should be applied, allowed to soak in thoroughly and the grip then wiped clean. In dry climates occasional light applications of linseed oil help to keep wood in good condition. Care should be taken to keep oil from getting into slots and apertures as it will "gum up" when dry.

47. MAINTENANCE AND REPAIR OF BAYONET SCABBARD, M3. -

a. Nicks and burs. - Nicks and burs on mouthpiece top should be removed with a smooth file. A flat file with a safe edge should be used for flat surfaces and a rat tail file for inside rounds.

b. Top loose in body. - If the top becomes loosened from the body, it may be tightened by springing the lugs of the metal top into the notches provided in the body of the scabbard.

48. MAINTENANCE AND REPAIR OF BAYONET SCABBARD, M1910. -

a. Nicks and burs. - Nicks and burs on mouthpiece top, or top bushing, should be removed with smooth file. A flat file, with safe edge should be used for flat surfaces and a rat tail file for inside rounds.

b. Top loose in body. - If top becomes loose in metal of the body, it may be tightened by placing piece of flat metal in blade opening of top to prevent springing and then placing scabbard on solid edge of flat surface such as the anvil of a vise so that rim of top does not contact. Then separate cover from rim of top, insert a thin cold chisel and strike lightly with hammer just back of rim of top. The metal body is crimped into groove in top just back of beveled rim. Care must be taken as main body of scabbard is wood.

c. Scratched or gouged leather reinforce. - Rough spots on leather reinforce, caused by scratches or gouges may be smoothed by paring with sharp, flat blade.

d. Dried-out (dead) leather. - An occasional cleaning with castile or saddle soap will help to keep leather from drying out, refer to paragraph 49. a.

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49. MAINTENANCE AND REPAIR OF GUN SLING, M1907. - a. Dried-out leather. - When straps become dried out as indicated by light cracking or stiffness a thorough cleaning with castile or saddle soap will help condition the leather. A thick lather of soap should be worked into leather and allowed to remain for a short while. Then rub off residue and briskly polish with dry, clean rag.

b. Scratches and gouges. - When straps become roughened by scratches, cuts or gouges they may be smoothed by paring lightly with a sharp, flat blade.

c. Bent sliding loops and hooks. - When sliding loops or hooks become spread or pinched, they should be corrected. Loops may be spread by placing piece of flat metal between loop and strap and using light hammer.

d. Worn holes in straps. - When holes in straps become worn or leather is torn between holes, the strap should be replaced. Punching new holes will weaken strap.

50. CARE, CLEANING AND LUBRICATION. - a. Care and cleaning. - For care and cleaning of U.S. Rifle, Cal..30, M1, refer to FM 23-5, section on "Care and Cleaning". For materials used and use of rifle bore cleaner, refer to TM 9-850, SNL K-1 and paragraphs 51 and 52 of this manual.

b. Lubrication. - Immediately after cleaning, the rifle will be thoroughly lubricated with OIL, lubricating, for aircraft instruments and machine gun, U.S. Army Spec. 2-27. A protective film of oil will be maintained at all times.

c. Care, cleaning and lubrication in arctic climates. - For the care, cleaning and lubrication of the materiel in arctic climates, see paragraphs 51 and 52 of this manual.

51. CARE, CLEANING AND LUBRICATION IN ARCTIC CLIMATES. -

a. Special care, cleaning and lubrication of U.S. Rifle, Cal..30, M1 is necessary for its proper functioning in arctic climates, where extremely low temperatures are encountered. In temperatures below freezing, it is necessary that the moving parts of the rifle be kept absolutely free of moisture. It has been found that excess oil on the working parts will solidify to such an extent as to cause sluggish operation or complete failure.

b. Materials for cleaning and lubrication. - For proper material for cleaning and lubrication in arctic climates refer to TM 9-850 and SNL K-1.

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52. CARE OF RIFLE IN ARCTIC CLIMATE. - a. Immediately upon bringing indoors, the rifle should be thoroughly oiled, because moisture condensing on the cold metal in a warm room will cause rusting. After the weapon reaches room temperature, it should be wiped free of condensed water vapor and oiled again. Oiling is best done by wiping with a slightly oiled cloth, using OIL, lubricating for aircraft instruments and machine guns (as specified in TM 9-850).

b. After use, the bore and chamber of the rifle should be thoroughly cleaned with rifle bore cleaner (as specified in TM 9-850), and immediately oiled to prevent rusting. Proper use of rifle bore cleaner is as follows:

(1) Run several patches saturated with the cleaner through bore. Remove the patch section (M3 cleaning rod only) and assemble the cleaning brush to the rod. Run cleaning rod, with brush assembled, back and forth several times. Care should be used to insure that the brush goes all the way through the bore before direction is reversed. Remove brush and run several more wet patches through the bore. Follow this by dry patches until they come out clean and dry. (If longer cleaning rod than M3 rod is used, a rag should be stuffed in breech to protect face of bolt).

(2) To clean the chamber insert the cleaning patch deep into slot of chamber cleaning tool (combination tool, M3). Lay tool with patch into palm of left hand, close left hand over tool, and give tool about three turns to the right. This will cause patch to be neatly wrapped around tool and will cover all its metal surfaces. A slight pressure with forefinger of left hand, while turning the tool, will twist end of the patch much like the finished end of a hand rolled cigarette, causing patch to be sufficiently secured to the tool to permit neat entry into the chamber. This insures cleaning the full length of the chamber, prevents patch from being crushed down to lower end of the tool, and eliminates danger of causing rings in the chamber by exposing portions of cleaning tool. Clean by twisting tool, with patch, in the chamber. Use wet and dry patches as explained in paragraph (1) above.

c. After the bore and chamber have been cleaned and dried they should be immediately oiled to prevent rusting.

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d. Before firing, the bore and chamber should be wiped free of oil.

e. Before use in temperatures below 0° F., the rifle should be completely cleaned with dry cleaning solvent. The working parts of surfaces showing signs of wear may be lubricated by rubbing with an oiled cloth. At temperatures above 0° F., the rifle may be oiled lightly after cleaning by wiping with a slightly oiled cloth. After cleaning and drying, a patch saturated with rifle bore cleaner, run through the bore and chamber will act as a short time rust preventive.

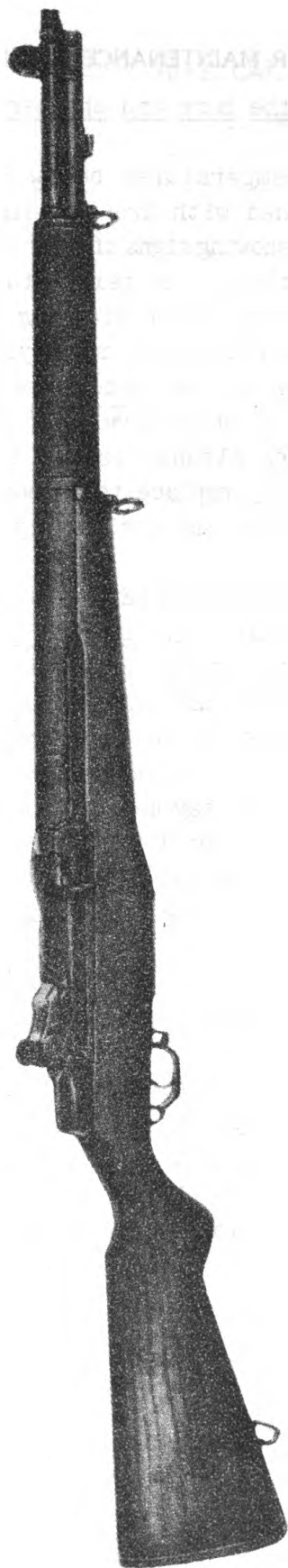
f. Use of rifle bore cleaner is not limited to arctic climates, and will eventually replace the "soapy water" and sal soda solution heretofore used as a cleaning agent for rifle bores.

53. CARE AND CLEANING OF BAYONET, BAYONET SCABBARD, AND GUN SLING IN ARCTIC CLIMATES. - a. Bayonet and bayonet scabbard. - Immediately upon bringing indoors the bayonet should be withdrawn from the scabbard and thoroughly oiled, as should the steel top and rivet heads of the scabbard, to protect them from rusting due to condensation of moisture. After they have reached room temperature, the bayonet and scabbard should be wiped dry of moisture and the metal parts lightly oiled again. Care should be taken to prevent oil from getting on leather or duck coverings of scabbard. Oiling is best done with a slightly oily rag.

b. Gun sling. - Occasional applications of castile soap or saddle soap will help to keep leather in condition, refer to paragraph 49 of this manual.

54. CLEANING RIFLES RECEIVED FROM STORAGE. - For proper cleaning of U.S. Rifle, Cal..30, M1 received from storage, refer to FM 23-5, section on "Care and Cleaning".

55. PREPARING RIFLES FOR STORAGE. - For preparation of U.S. Rifle, Cal..30, M1 for storage, refer to FM 23-5, section on "Care and Cleaning".

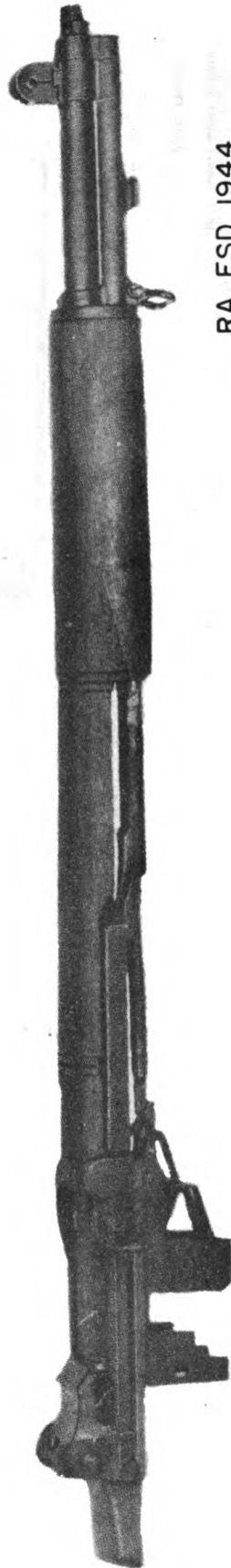


RA PD 6113

FIGURE 1 - U.S. RIFLE, CAL..30, M1 - RIGHT SIDE VIEW

(TM 9-1275)

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FIGURE 2 - U.S. RIFLE, CAL.30, M1 - BARREL AND RECEIVER GROUP - RIGHT SIDE VIEW

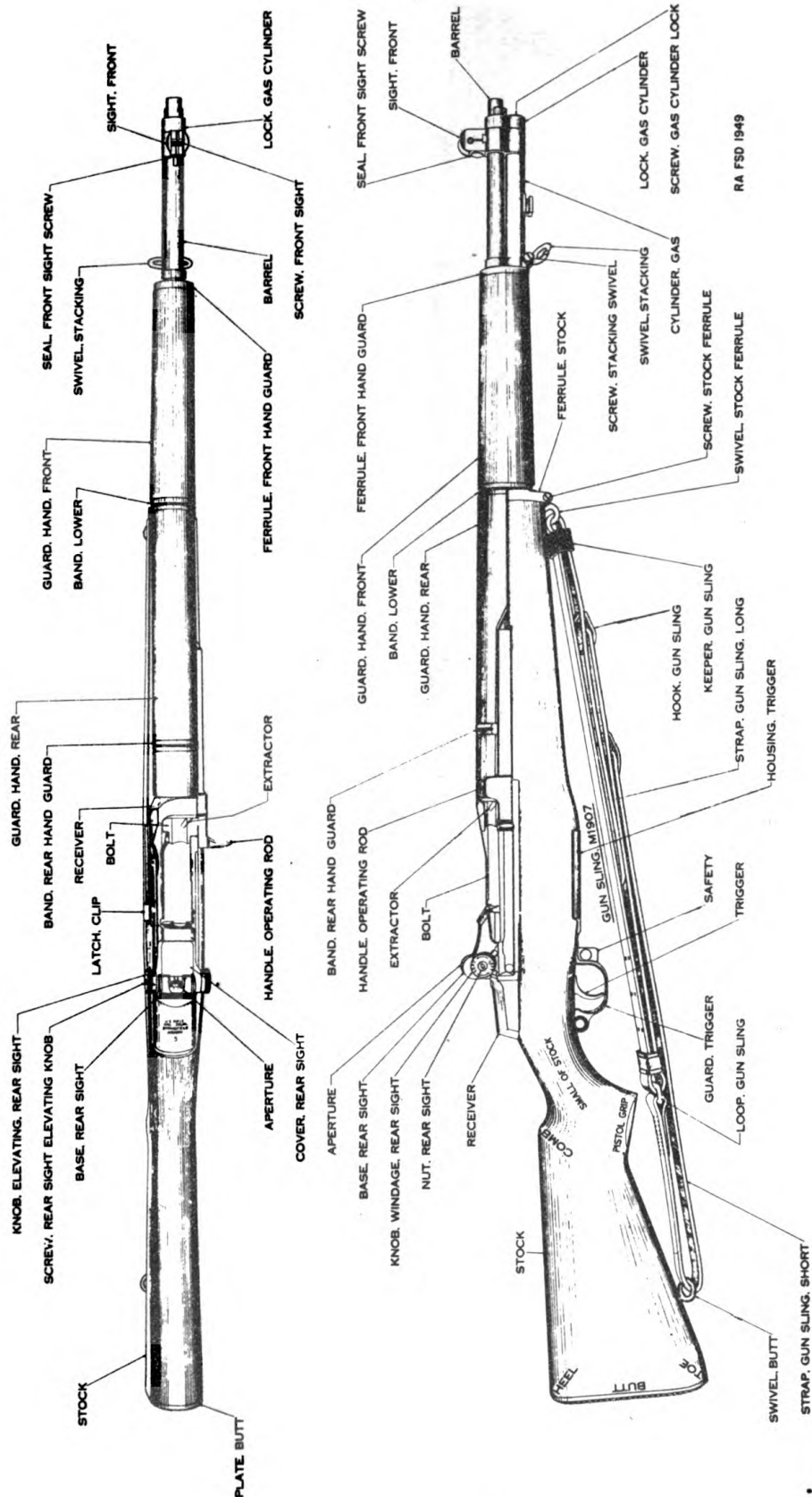
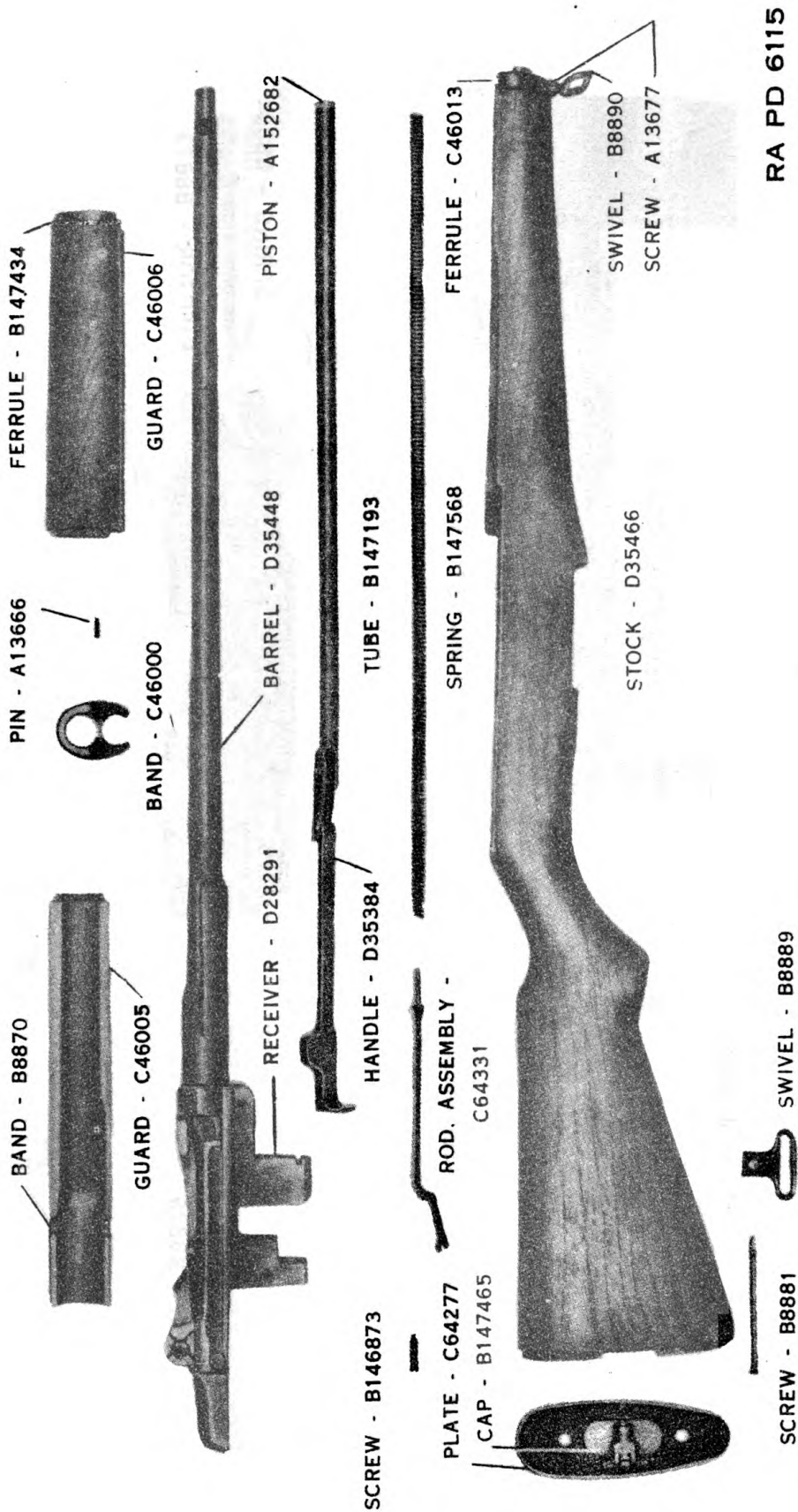


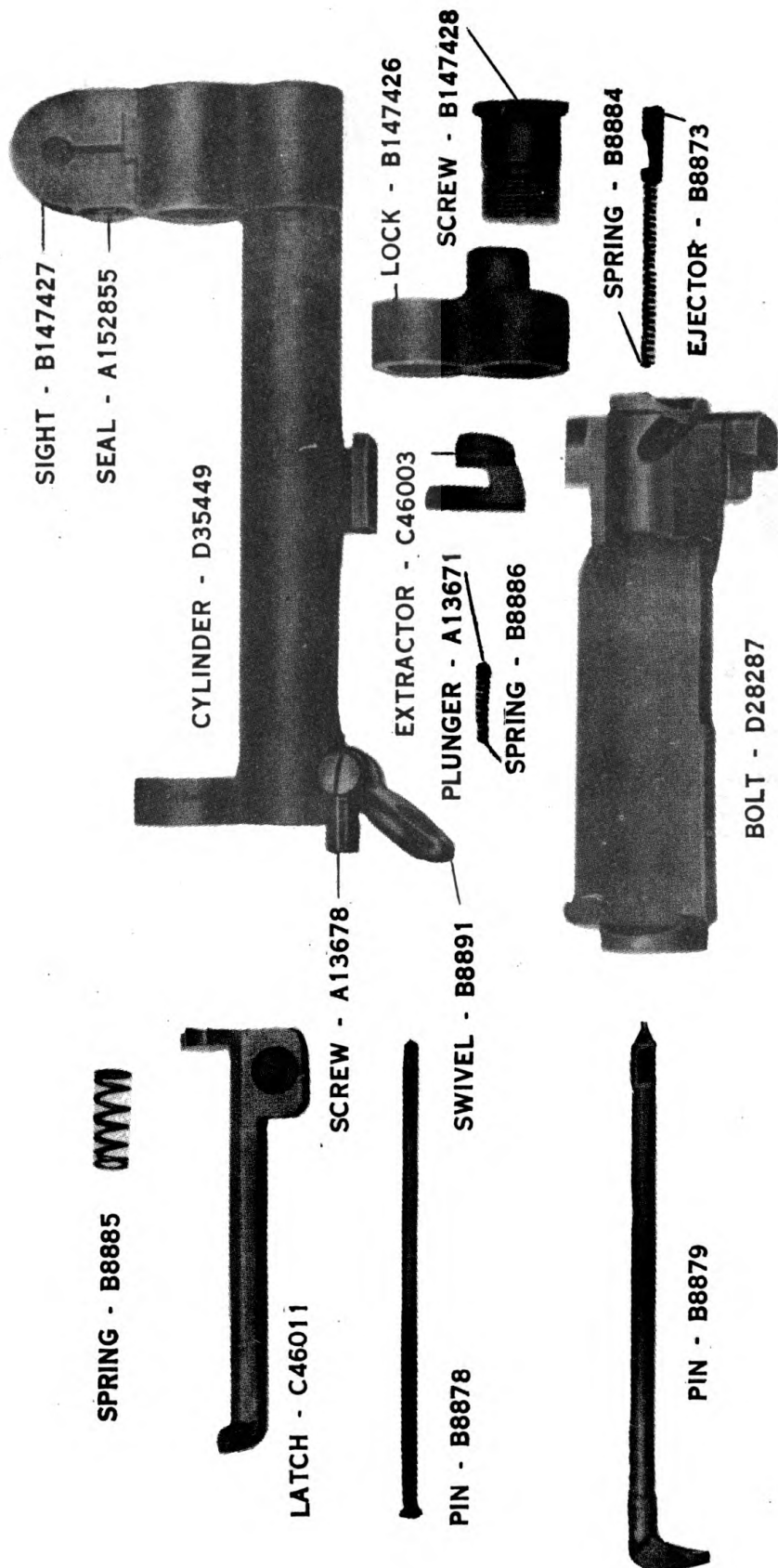
FIGURE 3 - U.S. RIFLE, CAL.30, M1 - RIGHT SIDE AND TOP VIEWS

(TM 9-1275)



RA PD 6115

FIGURE 4 - U.S. RIFLE, CAL. 30, M1 - PARTS



RA PD 6117

FIGURE 5 - U.S. RIFLE, CAL.30, M1 - PARTS

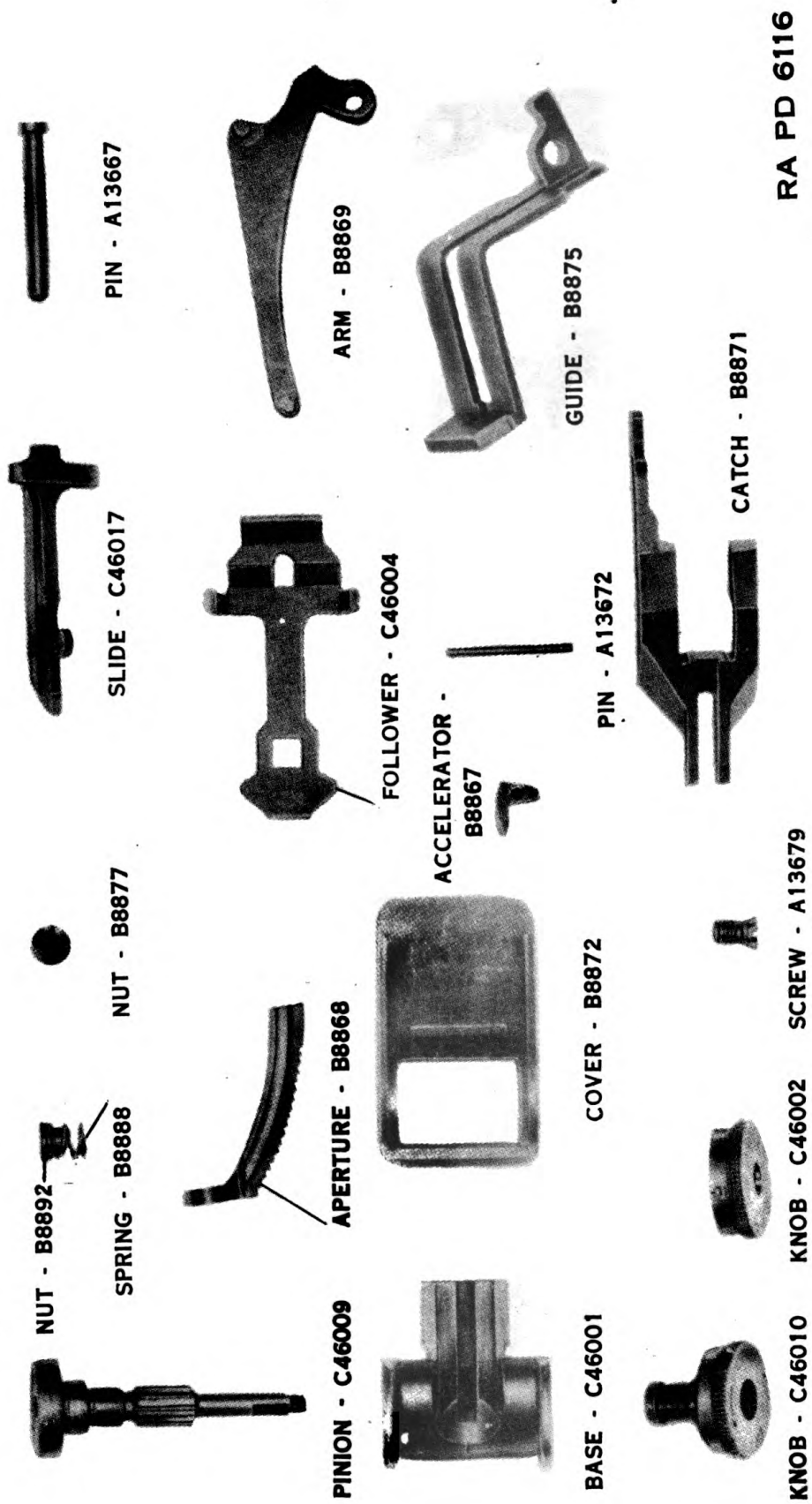
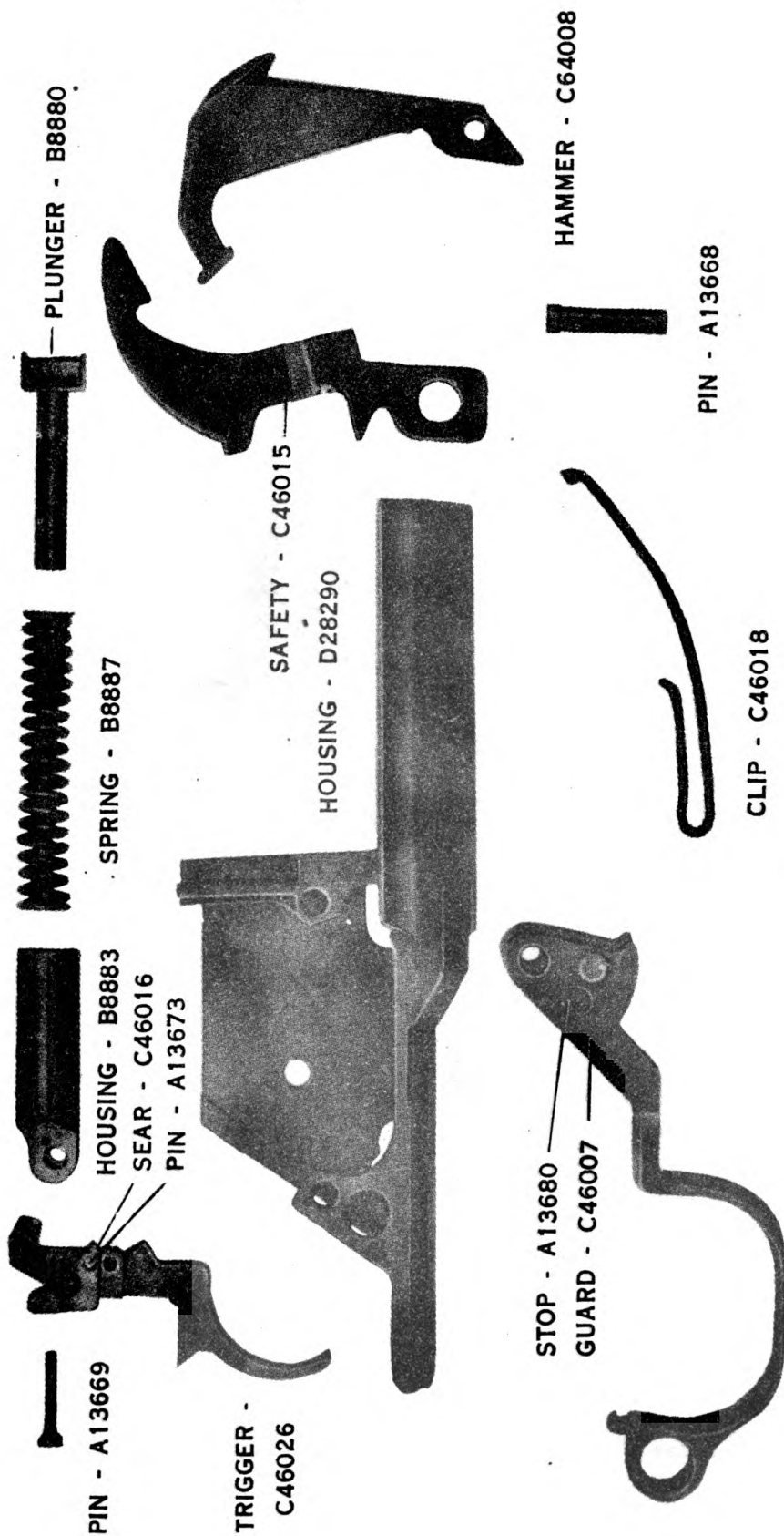


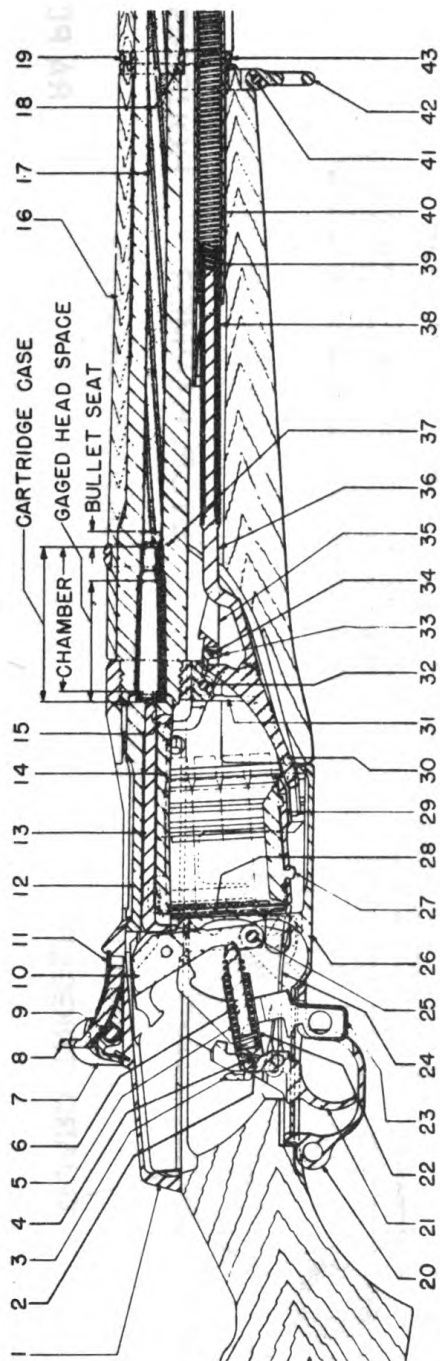
FIGURE 6 - U.S. RIFLE, CAL. 30, M1 - PARTS

RA PD 6116



RA PD 6118

FIGURE 7 - U.S. RIFLE, CAL.30, M1 - PARTS

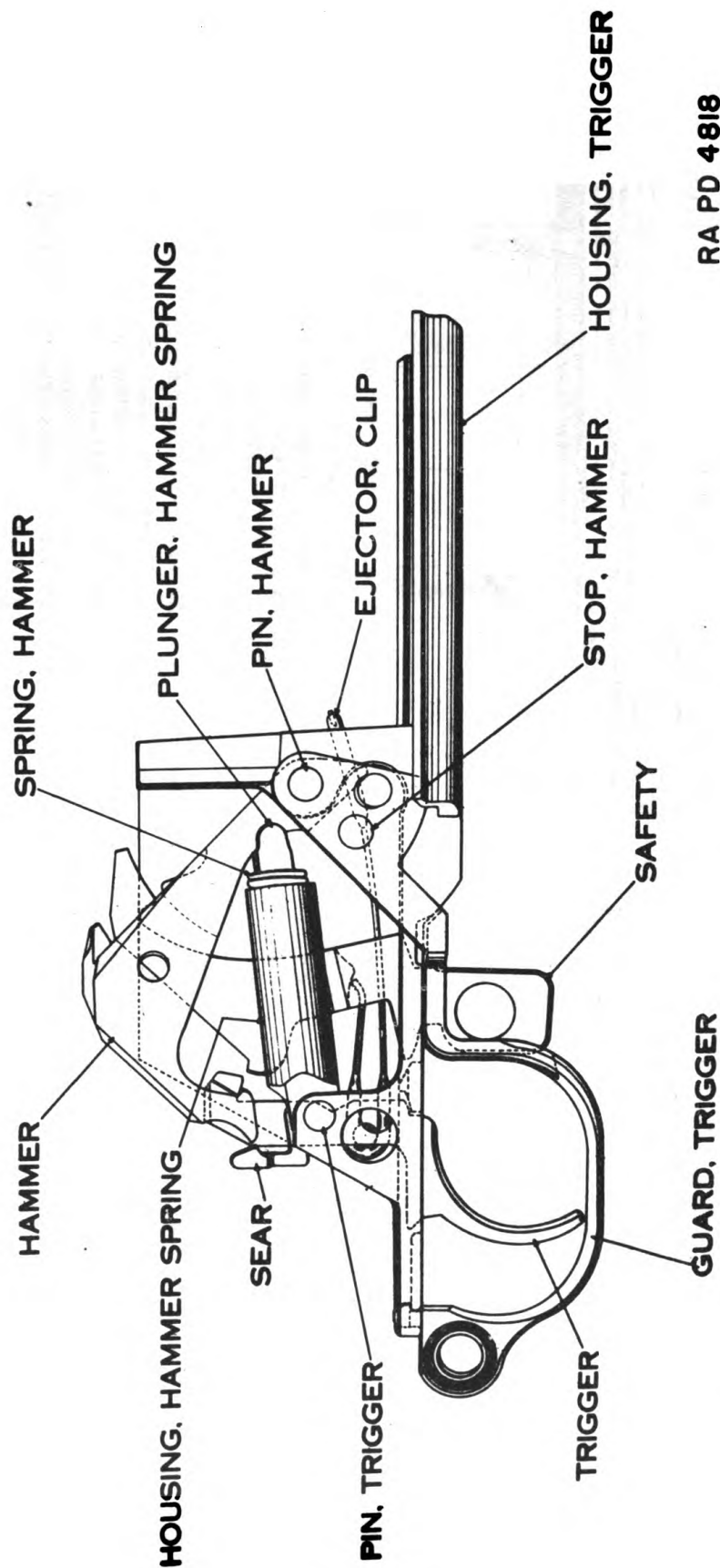


- | | | |
|---------------------------------|---------------------------|--------------------------|
| 1 RECEIVER | 16 GUARD, HAND, REAR | 31 GUIDE, BULLET |
| 2 PIN, TRIGGER | 17 BARREL | 32 PIN, FOLLOWER ARM |
| 3 SEAR | 18 PIN, LOWER BAND | 33 ACCELERATOR |
| 4 PIN, SEAR | 19 BAND, LOWER | 34 PIN, ACCELERATOR |
| 5 SPRING, HAMMER | 20 GUARD, TRIGGER | 35 CATCH, OPERATING ROD |
| 6 PLUNGER, HAMMER SPRING | 21 TRIGGER | 36 ROD, FOLLOWER |
| 7 BASE, REAR SIGHT | 22 HOUSING, HAMMER SPRING | 37 BAND, REAR HAND GUARD |
| 8 APERTURE | 23 SAFETY | 38 SPRING, COMPENSATING |
| 9 PINNON, ELEVATING, REAR SIGHT | 24 EJECTOR, CLIP | 39 HANDLE, OPERATING ROD |
| 10 HAMMER | 25 PIN, HAMMER | 40 SPRING, OPERATING ROD |
| 11 COVER, REAR SIGHT | 26 HOUSING, TRIGGER | 41 SCREW, STOCK FERRULE |
| 12 BOLT | 27 SLIDE, FOLLOWER | 42 SWIVEL, STOCK FERRULE |
| 13 PIN, FIRING | 28 CLIP, CARTRIDGE | 43 FERRULE, STOCK |
| 14 LATCH, CLIP | 29 FOLLOWER | |
| 15 EXTRACTOR | 30 ARM, FOLLOWER | |

RA PD 4817

FIGURE 8 - U.S. RIFLE, CAL.30, M1 - SECTIONAL VIEW

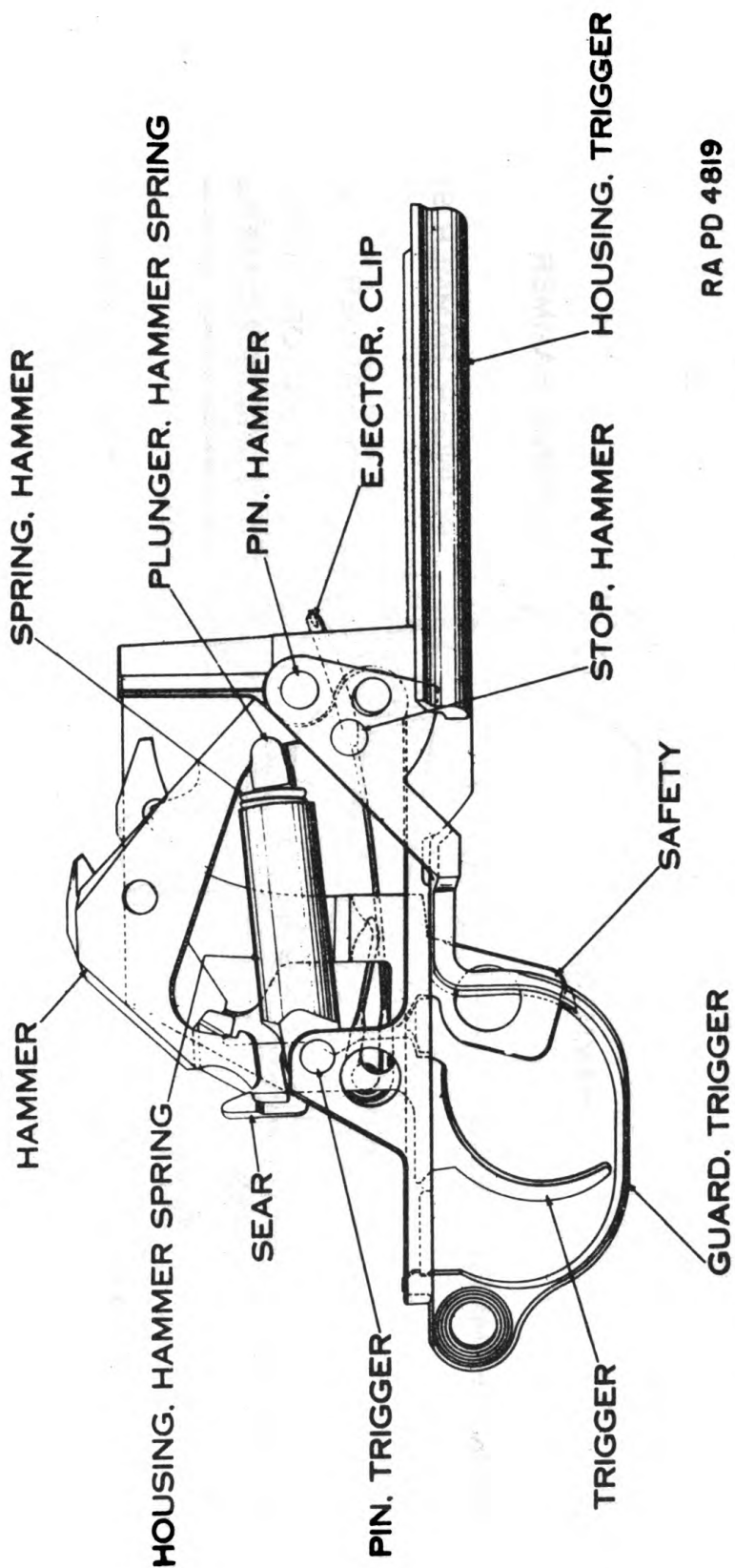
COCKED POSITION



RA PD 4818

FIGURE 9 - U.S. RIFLE, CAL.30, M1 - TRIGGER GROUP - COCKED POSITION

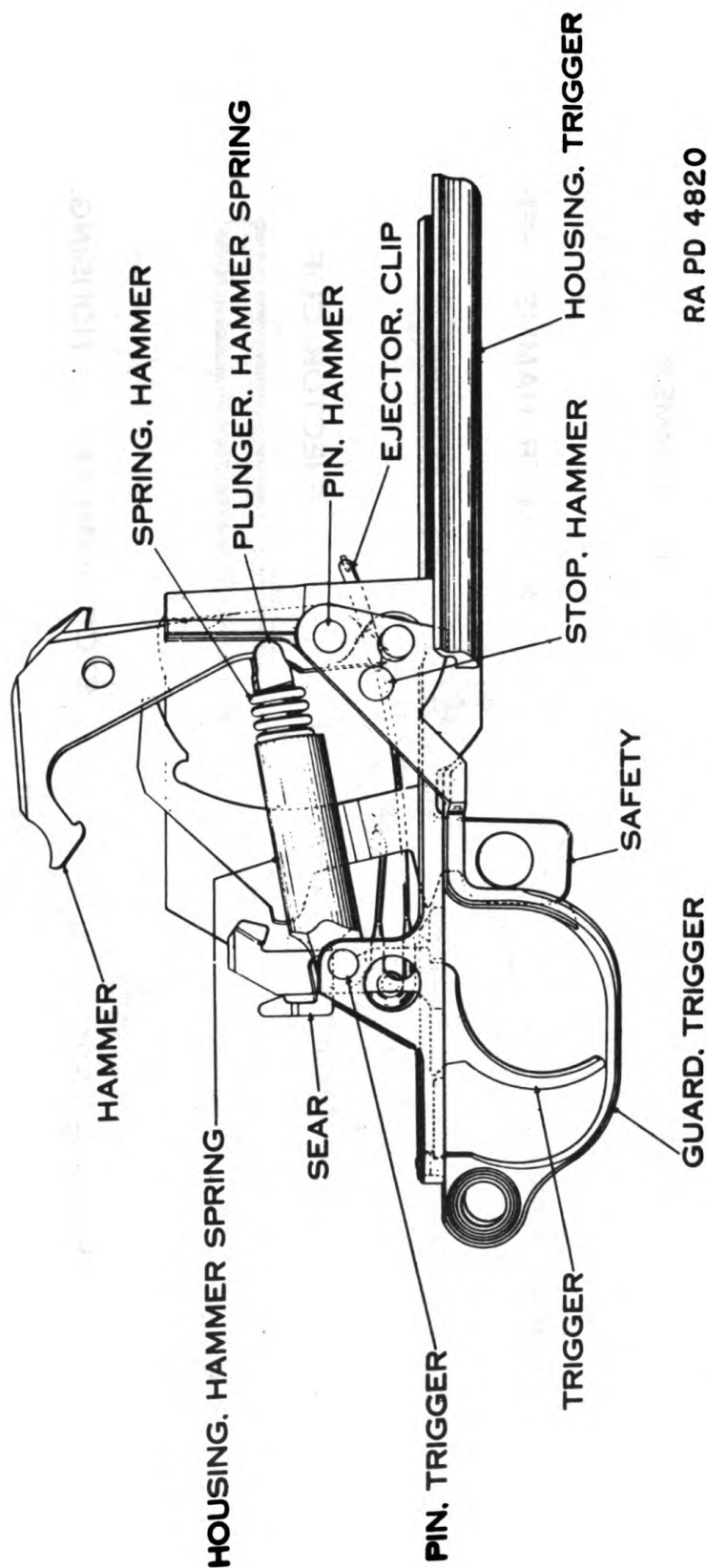
SAFETY POSITION



RA PD 4819

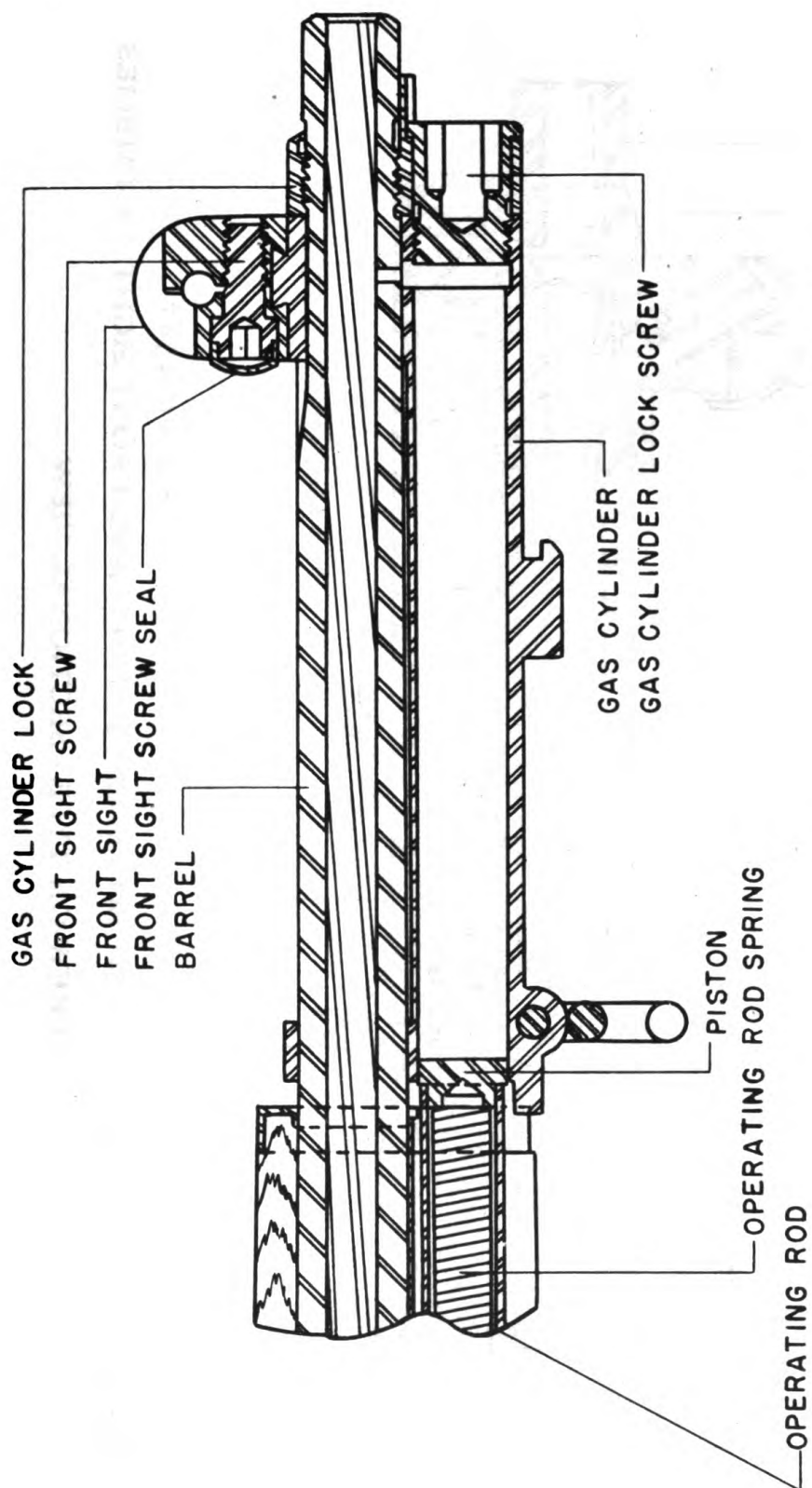
FIGURE 10 - U.S. RIFLE, CAL.30, M1 - TRIGGER GROUP - SAFETY POSITION

F I R E D P O S I T I O N



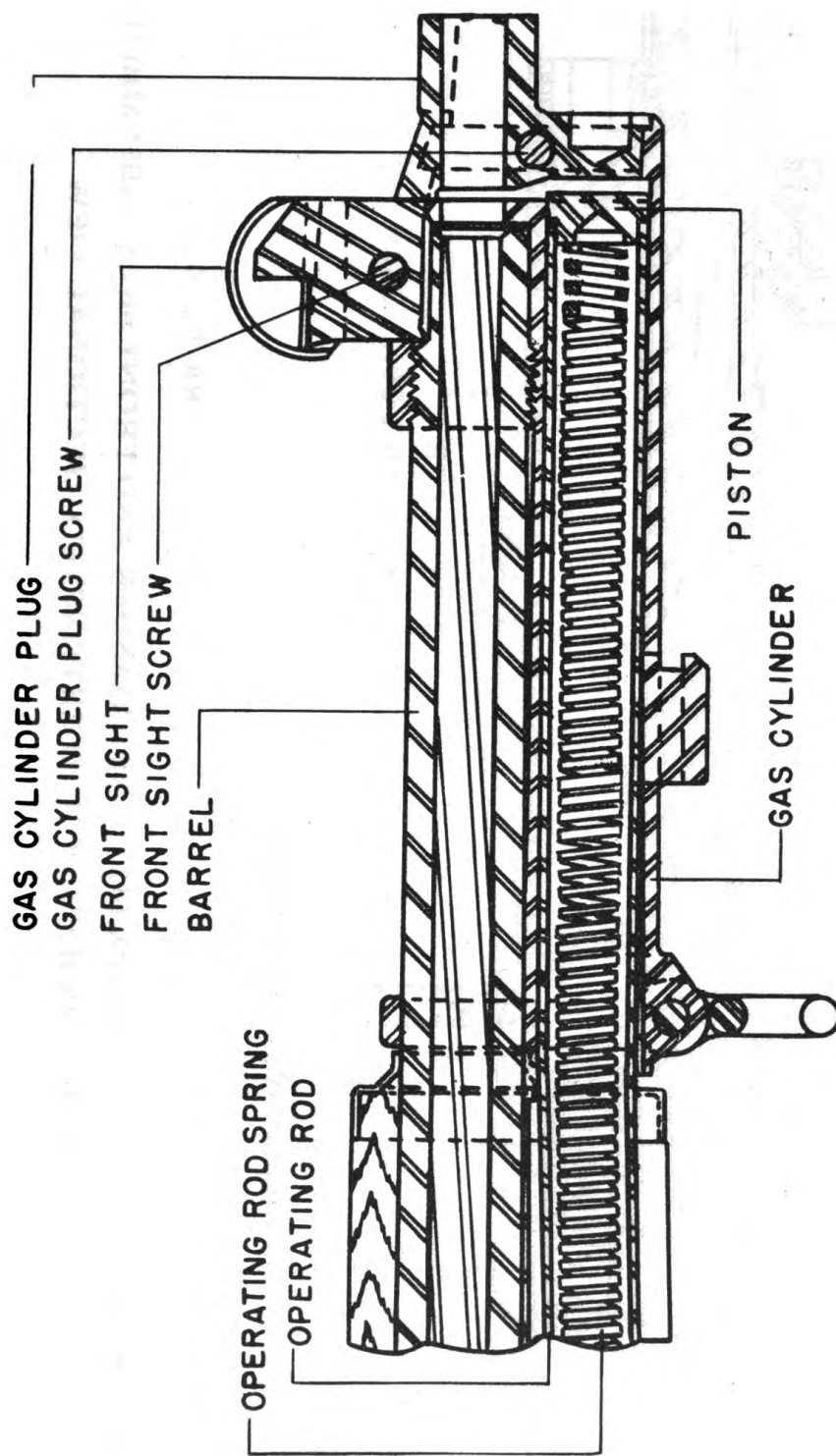
RA PD 4820

FIGURE 11 - U.S. RIFLE, CAL.30, M1 - TRIGGER GROUP - FIRED POSITION



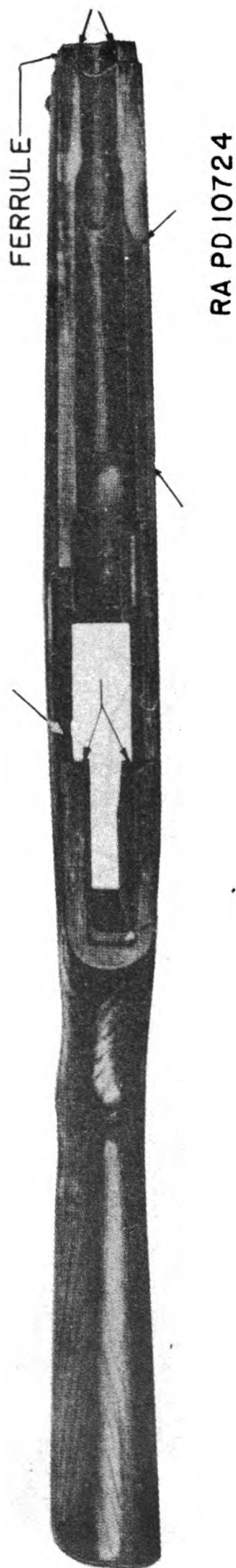
RA PD 4548

FIGURE 12 - U.S. RIFLE, CAL.30, M1 - GAS CYLINDER AND FRONT SIGHT ASSEMBLIES
SPLINE TYPE - OPERATING ROD RETRACTED - SECTIONAL VIEW

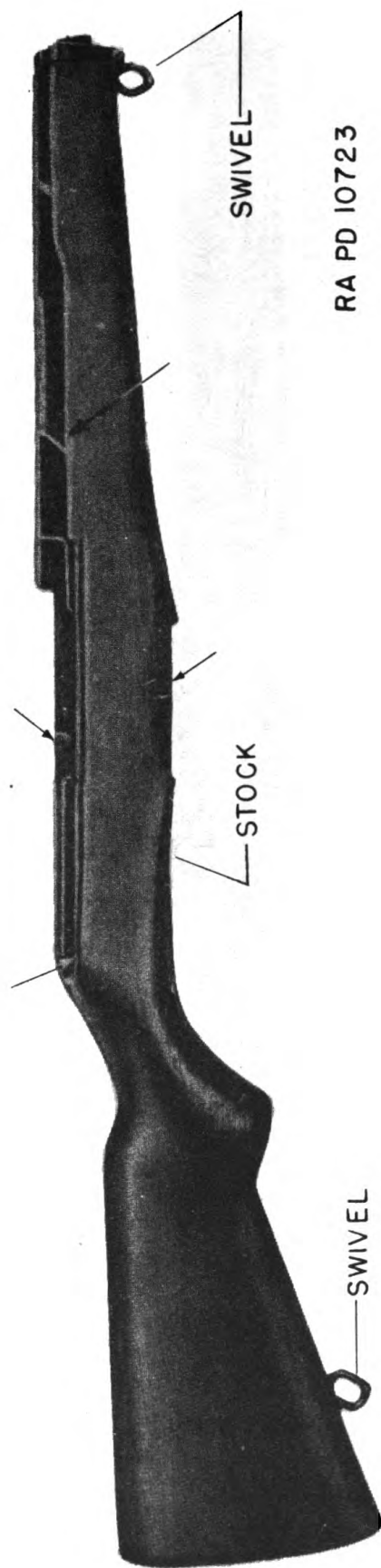


RA PD 4547

**FIGURE 13 - U.S. RIFLE, CAL.30, M1 - GAS CYLINDER AND FRONT SIGHT ASSEMBLIES
SCREW-ON TYPE - SECTIONAL VIEW**

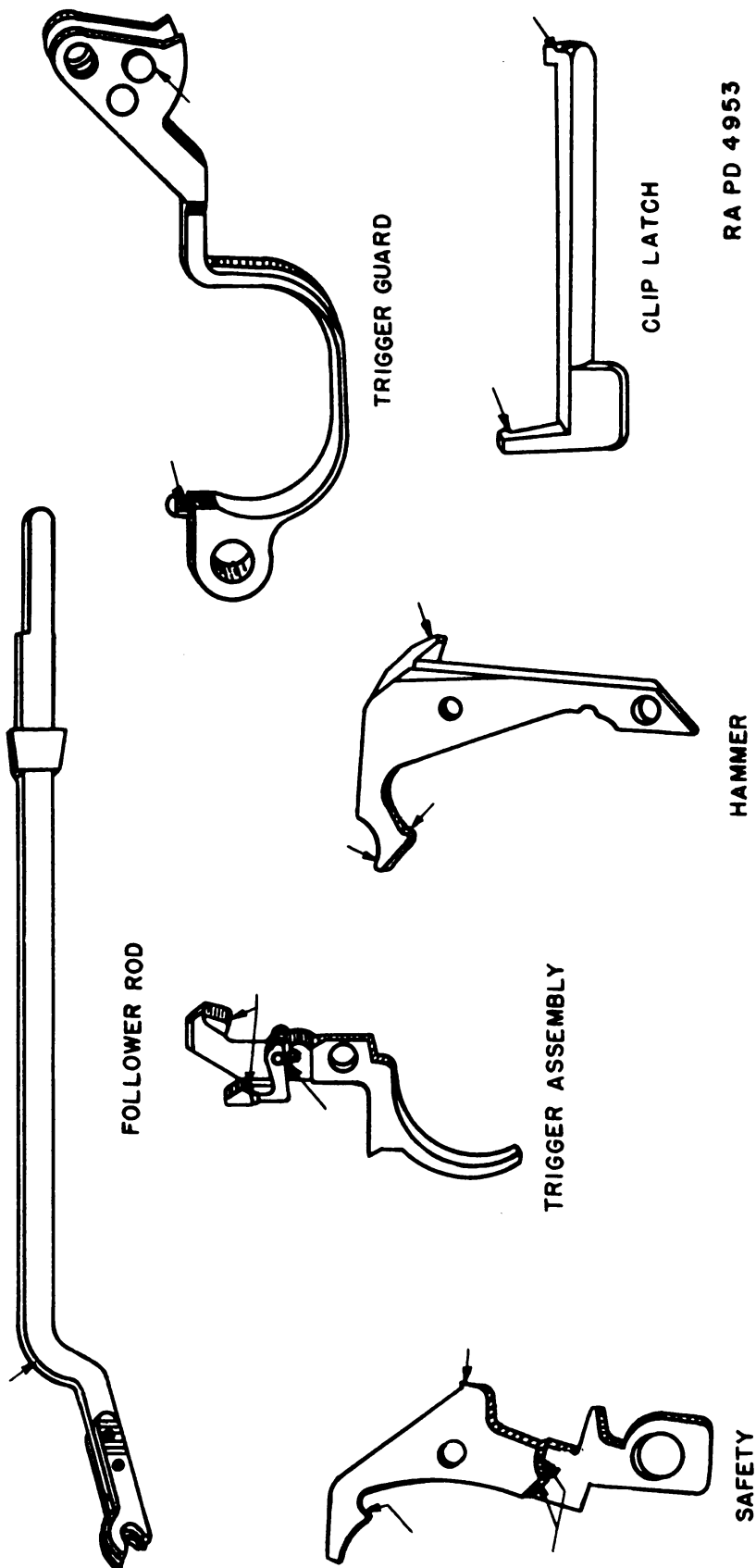


**FIGURE 14 - U.S. RIFLE, CAL.30, M1 - STOCK GROUP - TOP VIEW IMPORTANT
SURFACES INDICATED BY ARROWS**



RA PD 10723

**FIGURE 15 - U.S. RIFLE, CAL.30, M1 - STOCK GROUP - RIGHT SIDE VIEW
IMPORTANT SURFACES INDICATED BY ARROWS**



RA PD 4953

**FIGURE 16 - U.S. RIFLE, CAL.30, M1 - ASSEMBLIES AND PARTS -
IMPORTANT CONTACTING SURFACES INDICATED BY ARROWS**

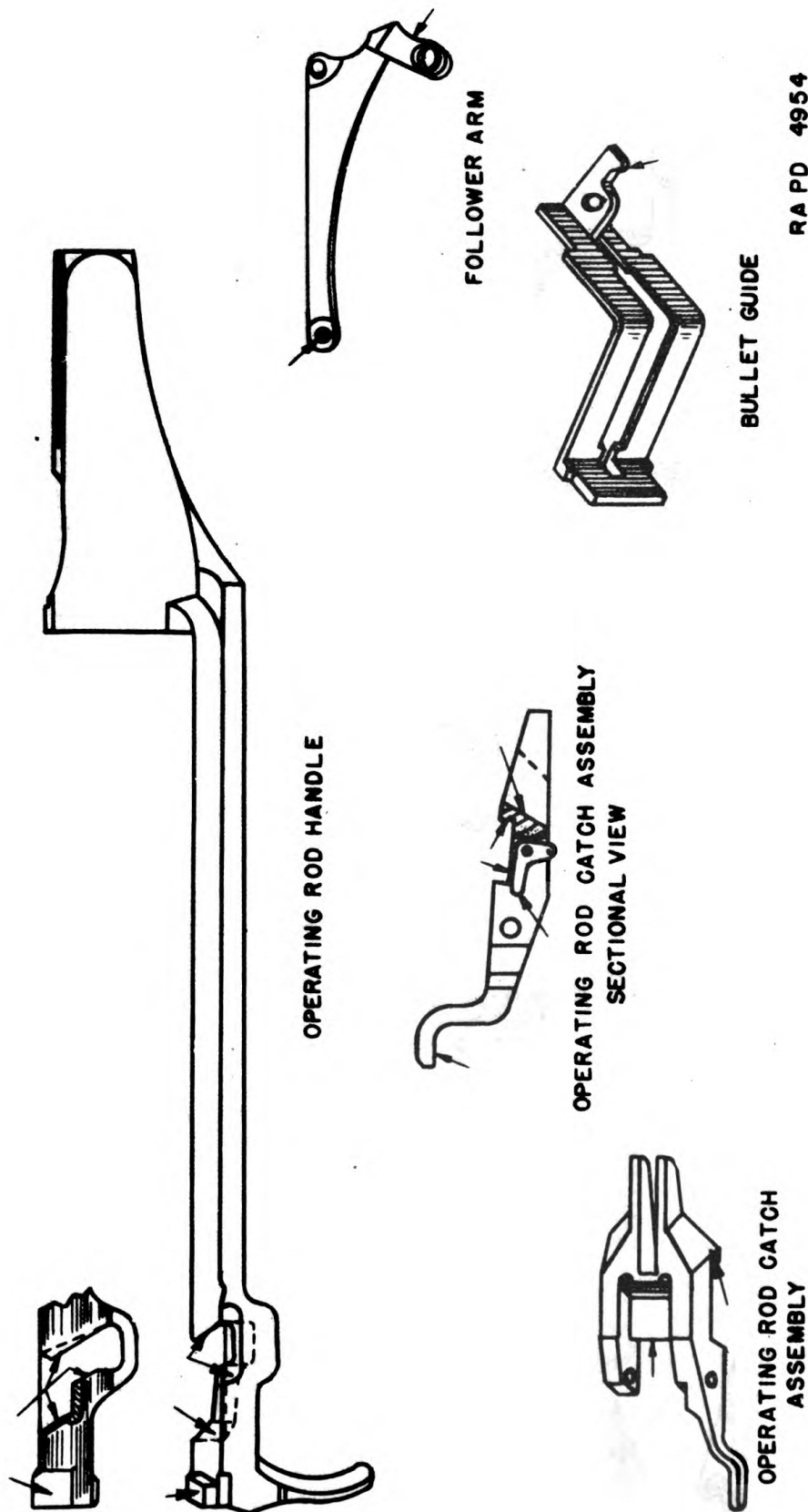
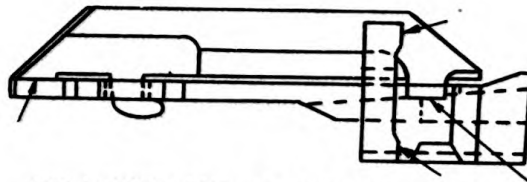
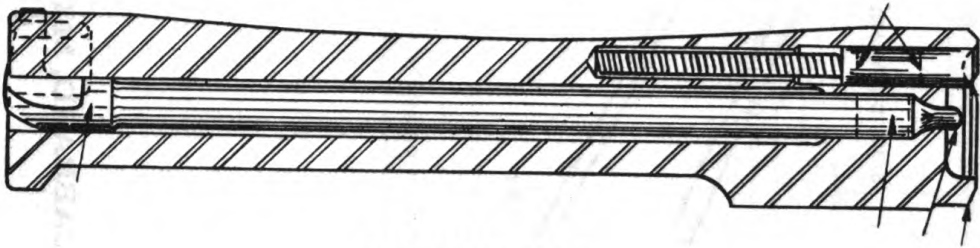


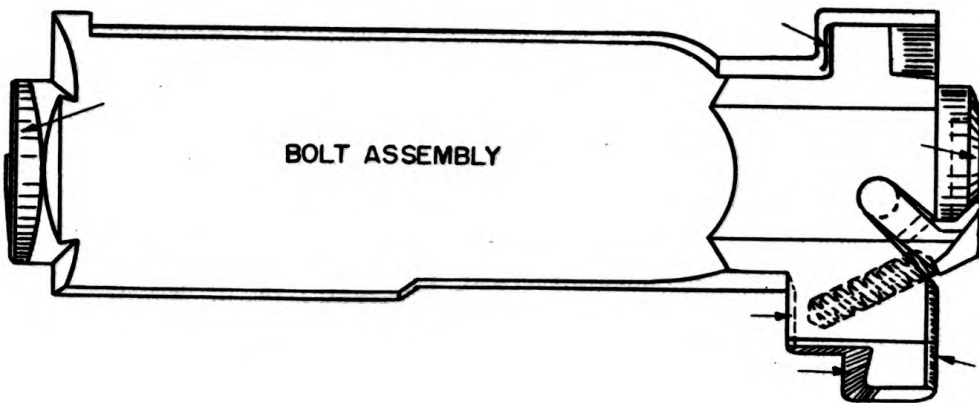
FIGURE 17 - U.S. RIFLE, CAL.30, M1 - ASSEMBLIES AND PARTS -
IMPORTANT CONTACTING SURFACES INDICATED BY ARROWS



FOLLOWER AND FOLLOWER SLIDE
(ASSEMBLED)



SECTIONAL VIEW



BOLT ASSEMBLY

RA PD 4955

**FIGURE 18 - U.S. RIFLE, CAL.30, M1 - ASSEMBLIES
AND PARTS - IMPORTANT CONTACTING SURFACES
INDICATED BY ARROWS**

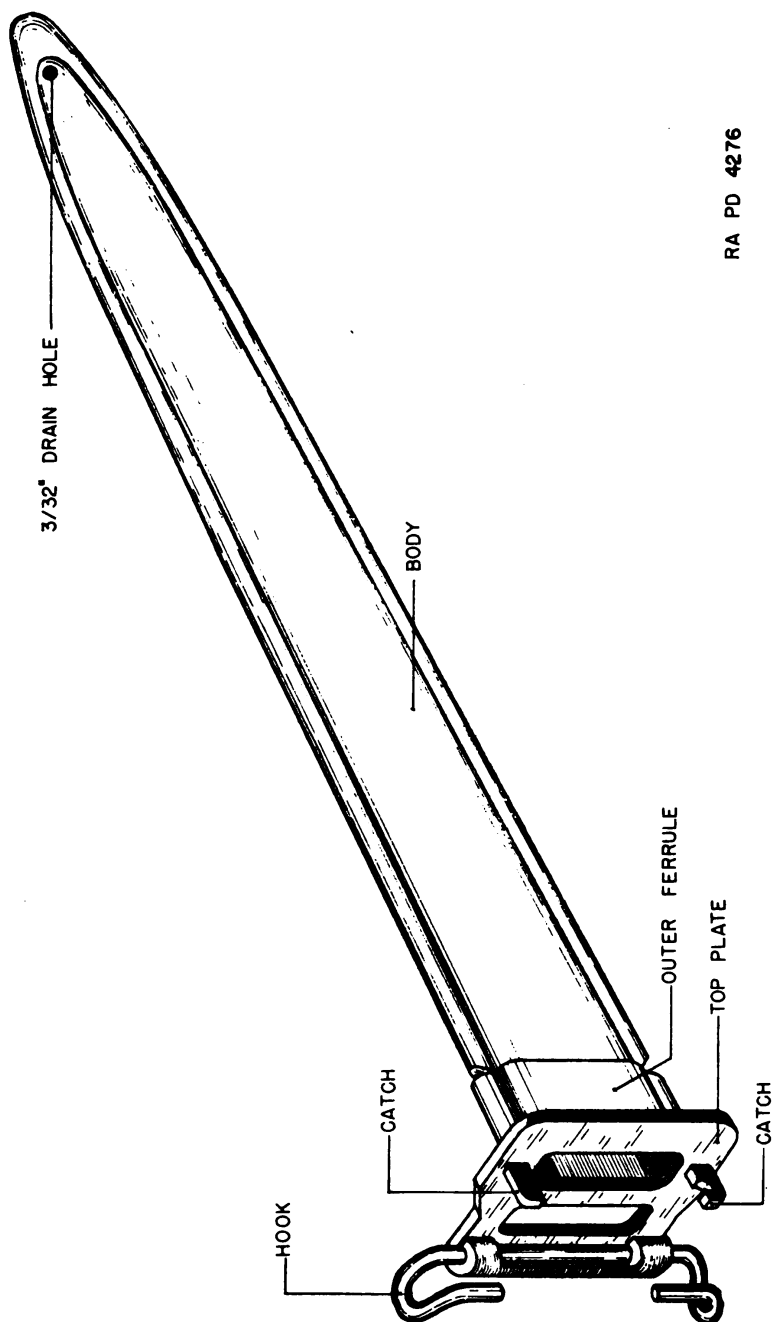
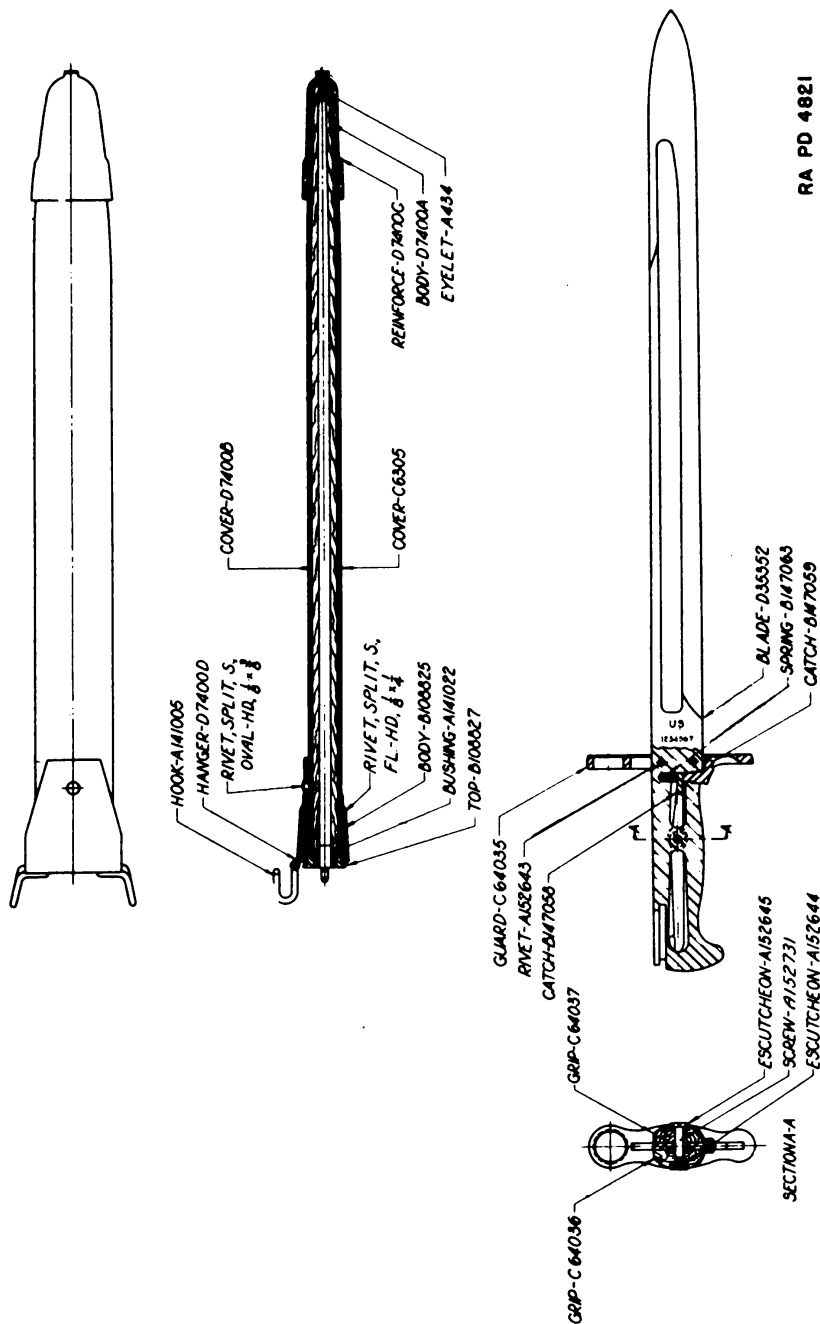
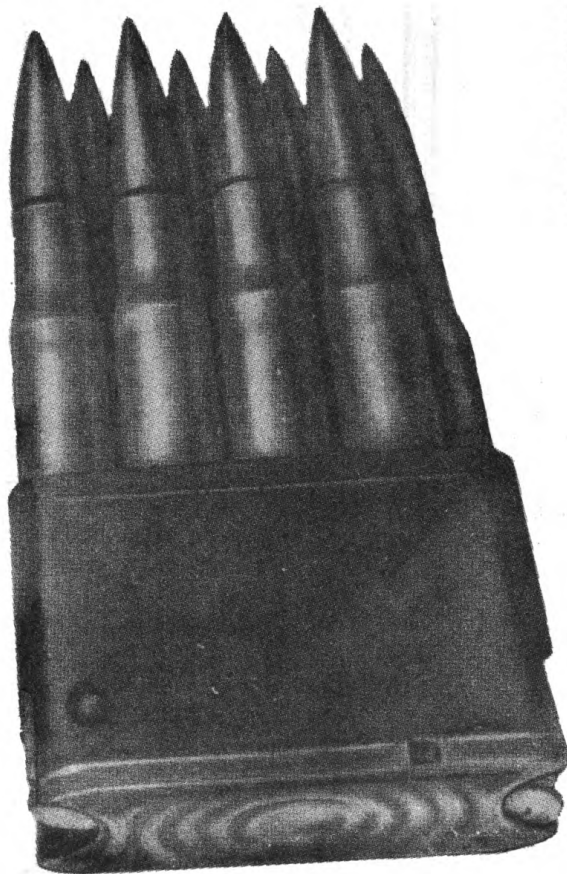


FIGURE 19 - BAYONET SCABBARD, M3



RA PD 4821

**FIGURE 20 - BAYONET, M1905, AND BAYONET SCABBARD, M1910 -
SECTIONAL VIEWS**



RA FSD 1948

FIGURE 21 - U.S. RIFLE, CAL..30, M1 - CARTRIDGE CLIP - LOADED

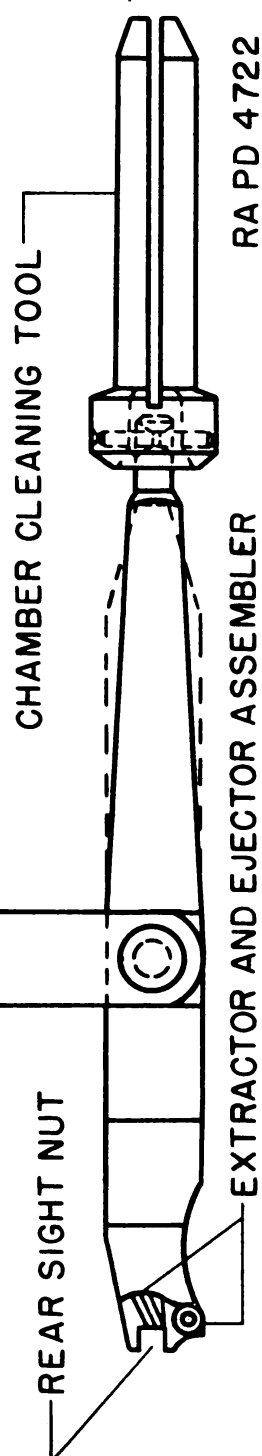
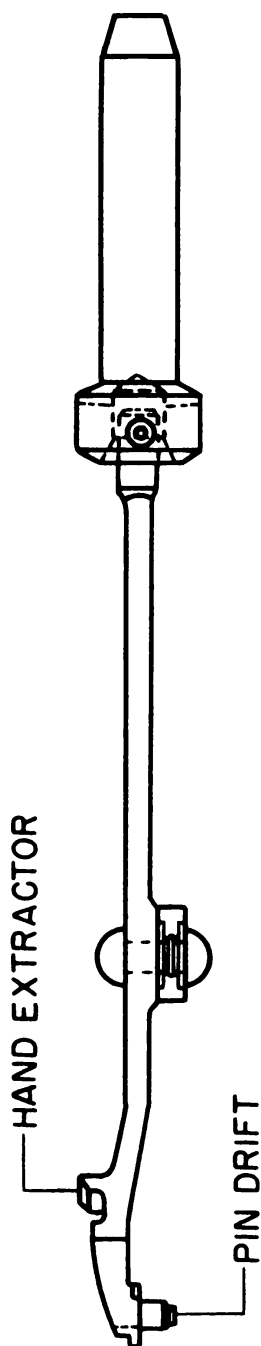
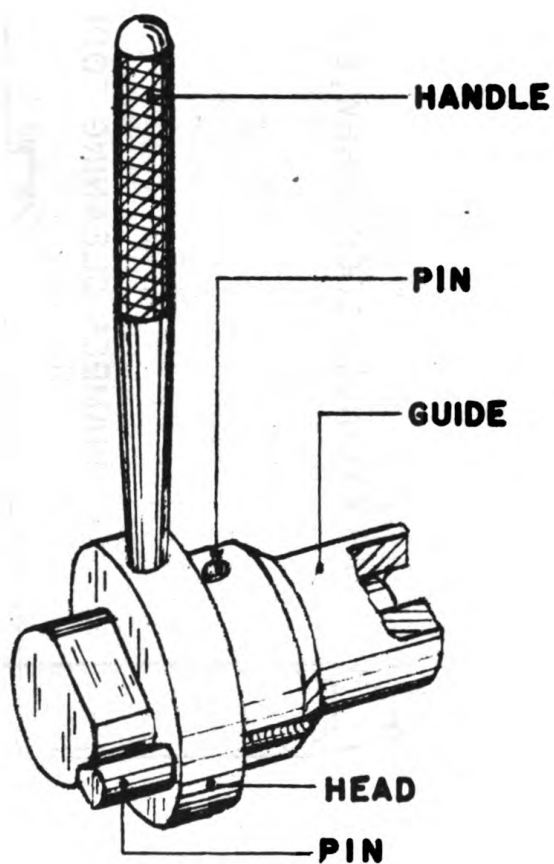


FIGURE 22 - COMBINATION TOOL, CAL.30, M3 - MARKED FOR USES



RA PD 4275

FIGURE 23 - EXTRACTOR REMOVING TOOL, B110581

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56. STANDARD NOMENCLATURE LISTS. -

Tools, Special Repair, Small and Hand Arms -----	SNL B-20
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Cleaning, Preserving and Lubricating Materials, Recoil Fluids, Special Oils, and similar items of issue -----	SNL K-1
Special Oils, Greases, Cutting Oil, Welding Compounds Brazing Materials, Gases, and related items -----	SNL K-2
Truck, Small Arms Repair, M1 - Parts and Equipment	SNL G-72

57. FIELD MANUALS. -

U.S. Rifle, Cal..30, M1 -----	FM 23-5
Defense against chemical attack -----	FM 21-40

58. TECHNICAL MANUALS. -

Cleaning, Preserving, Lubricating and Welding Materials and similar items issued by the Ordnance Department -----	TM 9-850
Ordnance Maintenance Procedure - Materiel Inspection and Repair -----	TM 9-1100

(A.G. 062.11 (11-4-41).)

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